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Musical Fidelity

M8xTT turntable – clearly superior!

STUDIO TOUR

BEHIND THE SCENES AT HOOK END STUDIO

PLUS...

MoFi MasterPhono

MM/MC preamp from a hi-fi mastermind

Matrix Audio Element X2 Pure, Trafomatic Rhapsody, B&W 603 S3, Perlisten S5t, Denon DNP-2000NE

Vintage Review

B&O Beomaster 2000 receiver

• **OPINION** 12 pages of letters & comment • **VINYL RELEASE** Sly And The Family's *Anthology* on 180g
• **CLASSICAL COMPANION** Tchaikovsky *The Nutcracker* • **VAULT** EAD and PS Audio DACs from 1992
• **VINYL ICON** The story of Pet Shop Boys' *Actually* • **READERS' CLASSIFIEDS** Hi-fi bargains galore

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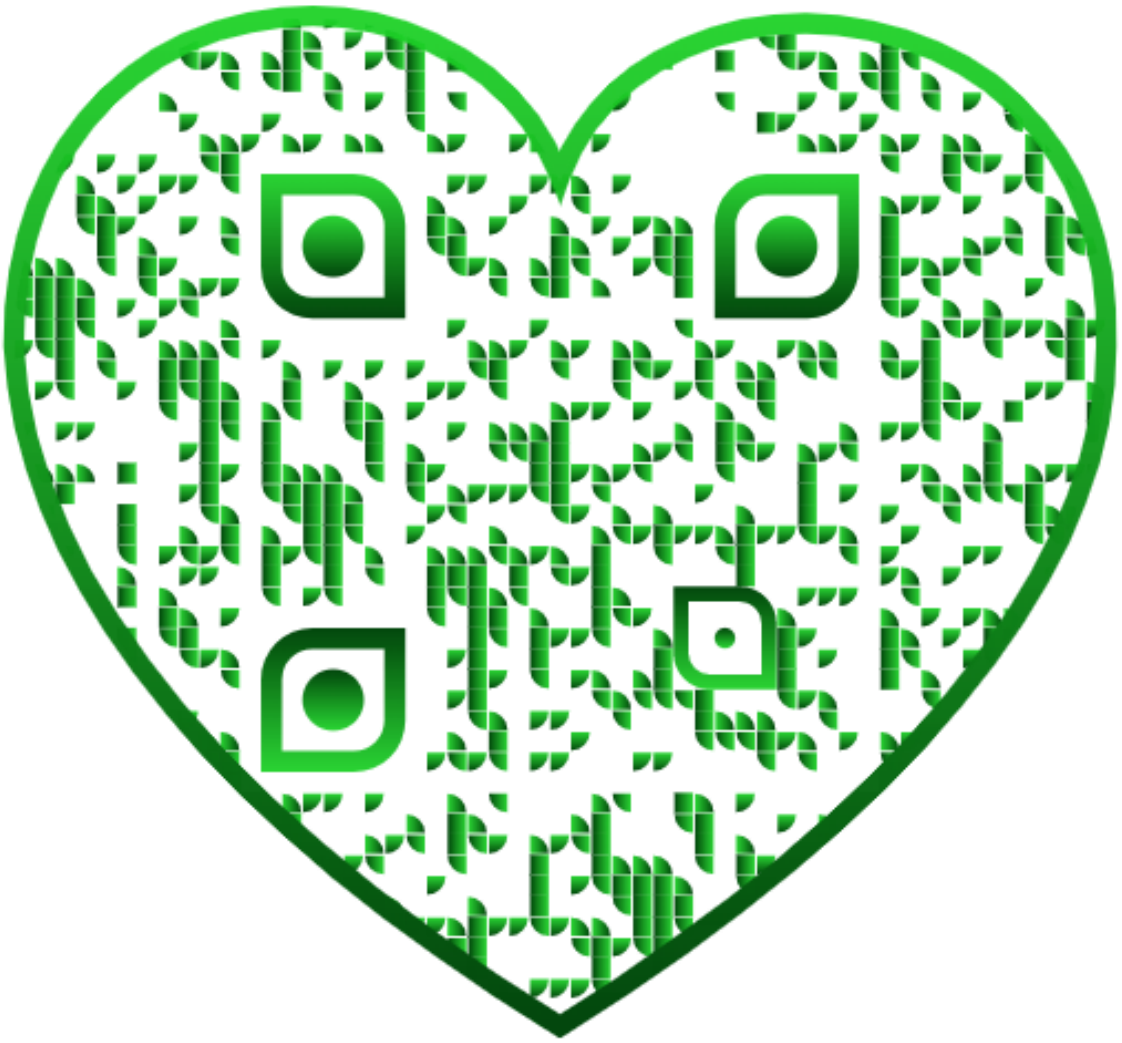

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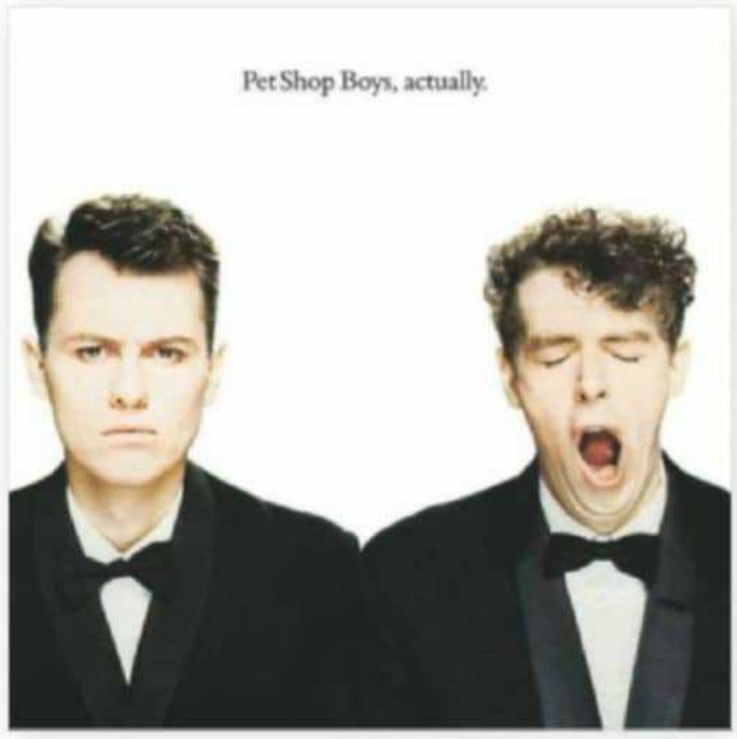

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David Robinson, Positive Feedback

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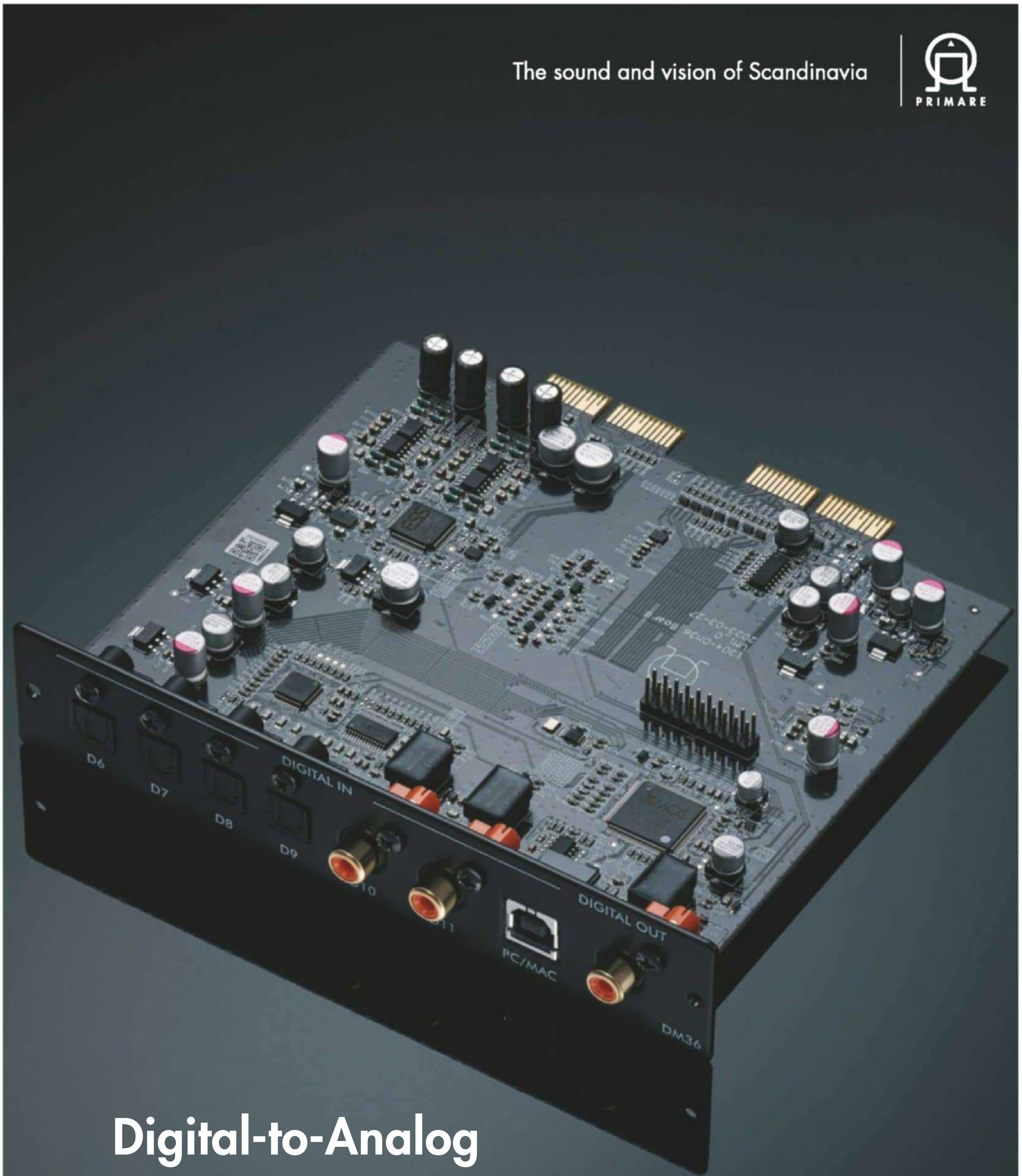

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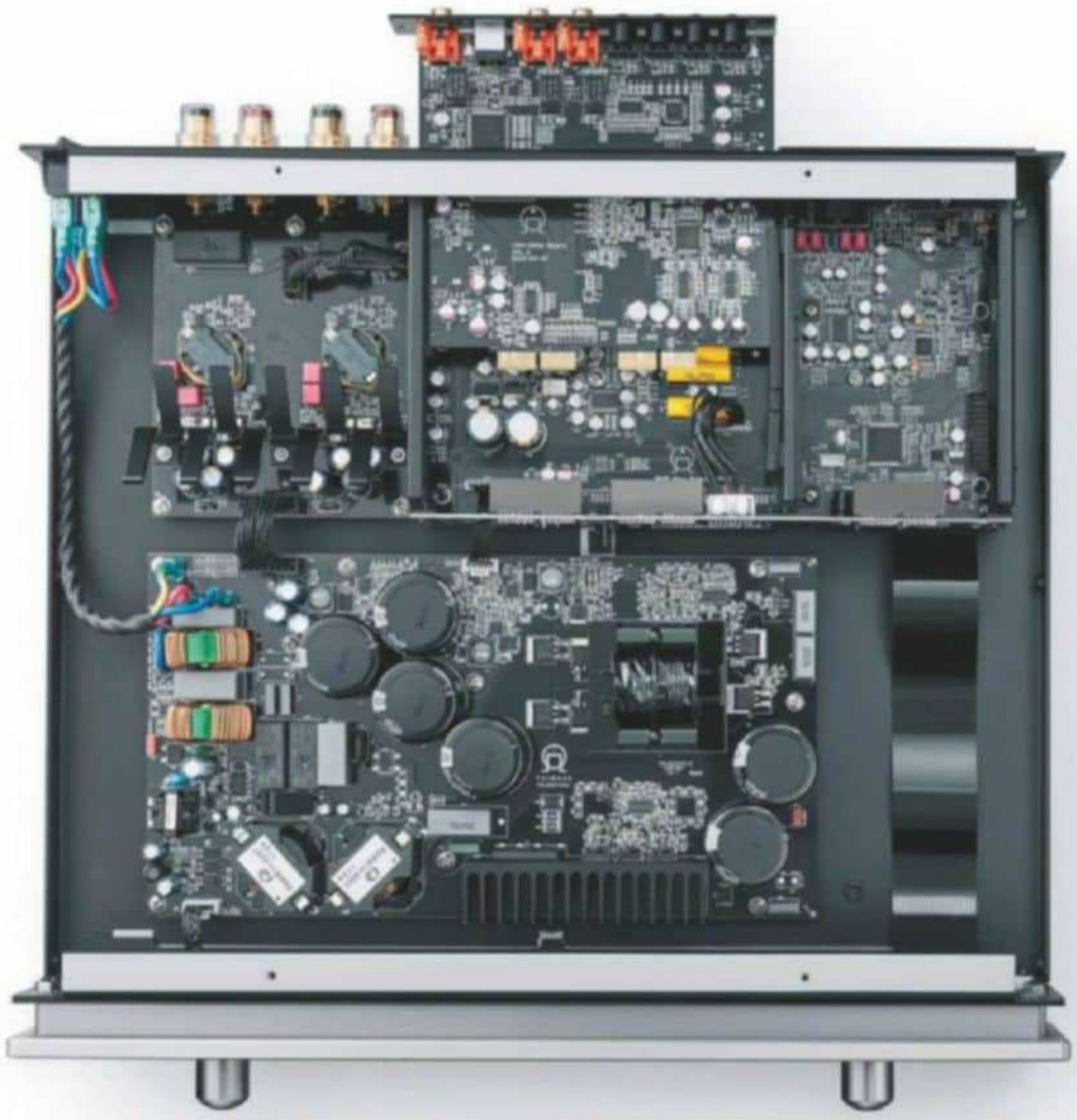

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RIGHT: Part of Absolute Sounds' Ten collection of artisan products, is the Trafomatic Rhapsody 300B tube amp as glorious-sounding as it looks? See p56

ABOVE: Denon's disc players and amplifiers have long needed a partnering network-attached streamer. And here it is, on p74

MUSIC: No second album syndrome for this month's Vinyl Icon, Pet Shop Boys' *Actually* (p82), while Steve Sutherland soaks up Sly And The Family Stone's *Anthology*, re-released on 180g LP (p80)

RIGHT: *HFN* is the UK's representative of EISA's Hi-Fi Expert Group. Editor Paul Miller took over as EISA's President in June 2016 and was re-elected in 2021

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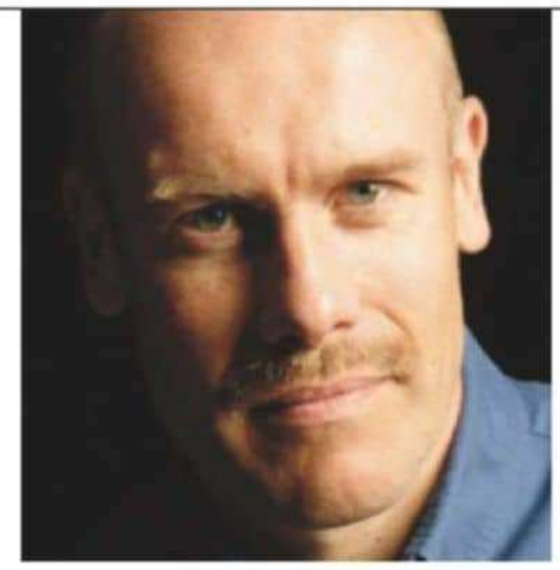

Artificial Intelligence (AI) is getting its hooks into everything from medical research to self-driving cars and, of course, the music biz. I've reported previously about fraudsters using generative AI, trained on real artists' intellectual property, to create 'new' music from which they profit. In extreme cases 'streaming farms' will then inflate audience numbers for tracks that are simply noise.

So how gratifying it was to finally hear 'the last new' Beatles song 'Now And Then' released on November 1st – demonstrating a very positive use of machine-learning technology. This new track, featuring every member of the Fab Four was not an AI construct, but a very 'human' endeavour. It has a string section composed by Giles Martin, plus Paul McCartney and Ringo Starr also playing 'live', mixed with a contribution from George Harrison culled from material recorded in 1995 and John Lennon from two decades earlier still.

The core source material for 'Now And Then' originates from a very raw demo cassette recording unearthed by Yoko Ono in 1994. Two of three proto-tracks, 'Real Love' and 'Free As A Bird' were released as part of *The Beatles Anthology* project but 'Now And Then' was, at the time, a challenge too far.

It was impossible to separate the voice from the piano and tape noise – the prevailing technology was focused on de-noising rather than isolating voices and instruments. That changed under Peter Jackson's direction of the 2021 *Get Back* documentary where machine-learning software was pressed into service as part of the technical restoration process.

> '"Now And Then" is an entirely positive application of AI'

Now it was possible, using AI, to entirely recover John Lennon's vocals from under the piano and noise – the other instruments, the mixing and mastering were all subsequently completed by real human beings! But this also begs the question: who knows what hitherto 'unusable' material is held in the vaults by the estates of artists long passed. AI might just open the gate to more 'last ever' releases.

PAUL MILLER GROUP EDITOR

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has reviewed hi-fi for over 30 years and is still effortlessly enthusiastic about new technology, kit and discovering new music

STEVE SUTHERLAND
worked on *Melody Maker* and then edited *NME* from 1992-2000, the Britpop years. Steve brings a unique slant to our Vinyl Release pages

Flagship digital hub

NAD'S NEW PREMIUM STREAMING DAC/PREAMP AIMS TO IMPRESS BOTH VINYL LOVERS AND DIGITAL MUSIC FANS

NAD has announced a new range-topping DAC/preamp for its Master Series. Priced £4499, the M66 is an obvious partner for the Canadian manufacturer's M23 stereo power amplifier [*HFN* Oct '22], and integrates the now-familiar 'hi-res' BluOS streaming platform.

Analogue and digital signal paths are separated, each with their own power supply. The M66's connectivity includes optical, coaxial, HDMI eARC and AES/EBU digital inputs, plus MM/MC phono (with analogue bypass mode). Making its debut is new 'Dynamic Digital Headroom' technology, which leverages the M66's ESS Sabre DAC to eliminate 'digital intersample peak clipping distortion'. Dirac Live room correction and bass control (the preamp supports up to four independent subwoofers) are onboard.

In addition to BluOS-delivered (and app-controllable) network audio, the M66 features Apple AirPlay 2 and two-way Bluetooth transmission, while owners of wired headphones can make use of a built-in headphone amplifier. The M66 adopts the Masters series' customary aluminium bodywork, and features a large (7in) touchscreen display.

NAD Electronics, Canada, 01732 459555; http://nadelectronics.com

Fishing for vinyl

DEDICATED PHONO STAGE FROM MOLA MOLA

Self-described 'esoteric' Dutch brand Mola Mola has adopted – and upgraded – the RIAA phono stage from its Makua preamp [*HFN* Aug '17] and Kula integrated amp [*HFN* Oct '21] into a standalone design. Available now for £7299, the Lupe sports independent MM and MC stages, with gain offered in 5dB steps between 40-45dB (MM) and 52dB-87dB (MC) plus numerous input load settings. Mola Mola claims its EQ settings cover 'practically all known cutting curves' including 78rpm standards. Multiple turntables are accommodated thanks to its quartet of inputs (three RCA, one XLR), while other features include include XLR and RCA outs, four configurable presets, subsonic filter (–3dB/ 20Hz), control through Mola Mola's Remote app, and a front-panel info display.

Mola Mola, Groningen, The Netherlands 0800 009 6213; www.mola-mola.nl

HI-FI NEWS' NUGGETS

QUIET PLEASE!

Reborn in 2020 with a pair of data switches, Chord Company brand English Electric has now announced the EE1 'network noise isolator'. This passive Ethernet adapter uses galvanic and common-mode noise reduction technologies to improve signal purity, with suggested uses including between a network switch and audio streamer. Priced £250, the EE1 will come supplied with a 0.75m C-Stream streaming cable 'for a limited time'. *www.englishelectric.uk*

PREMIUM WIRELESS

The Melos active speaker from high-end Swiss manufacturer Goldmund marries soft dome tweeters and 7in bass/mid drivers with onboard 2x175W 'Telos' amp stages incorporating digital filtering and time correction. Its standmount cabinets, finished in silver-grey, are vented for a claimed 40Hz (–6dB) bass extension, while connectivity comprises coaxial in/out, and wireless. Pricing is £36,000 per pair. *www.goldmund.com*

Compact two-way

MICRO SPEAKERS FOR YOUR MICRO SYSTEM?

Measuring a mere 19cm high, 12cm wide and 12cm deep, Wharfedale's new DX-3 speaker (£149) is primed for bookshelf/desktop use, or even on-wall, courtesy of its rear-panel keyhole fixings. A two-way design, the DX-3 partners a 75mm woven polypropylene bass/mid driver with a 19mm silk dome tweeter, integrated via a 2.8kHz crossover. Both drive units are in part derived from those in Wharfedale's costlier Diamond 12 series, as is the construction of the speaker's sealed cabinet, for which black and walnut finishes are available. The DX-3s also feature in a compact 5.1 system from Wharfedale, priced at £499.

International Audio Group, China, 01480 452561; www.wharfedale.co.uk

Viking power

MONO AMP ADDITION TO ELECTROCOMPANIET'S 'CLASSIC LINE'

Hot on the heels of the AW 800 M 'Reference Monoblock' amplifier [*HFN* Sep '23] comes a new mono design from Norway's Electrocompaniet. The AW 300 M (£12,100) is a genuine mono amplifier rather than a bridgeable stereo chassis. Power output is rated at 300W/8ohm, delivered by Electrocompaniet's familiar direct-coupled, high slew-rate, wide open-loop bandwidth topology, with the promise of a 'stiff output' regardless of the connected load.

Under the hood, the amp features internal heatsinking and a PSU featuring an 800VA toroidal transformer and 'over' 110,000µF of reservoir capacitance. Electrocompaniet says the AW 300 M's AC mains input is 'meticulously filtered' for DC and noise interference, while the amp stage offers over-current protection. The distinctive black/gold 'Classic Line' aesthetic is retained, as is the 'ground up' chassis redesign of the AW 800 M, now more compact at 212mm wide.

Electrocompaniet AS, Norway, 01334 570 666; https://electrocompaniet.com

Separates in synergy

MARANTZ AMP AND CD PLAYER MAKE A COMPLETE SYSTEM

While Denon's DCD- and PMA-1700NE pairing matches a CD transport with network-capable integrated amplifier [*HFN* May '23], stablemate brand Marantz has taken a different approach, launching the CD50n network-attached CD player and Model 50 analogue integrated amp [pictured]. Both sell for £1600 in slender silver or black chassis. The disc-spinner incorporates a HEOS streaming module [see p75], digital inputs/outputs (including 384kHz PCM/DSD256-capable USB) and fixed/variable line-out, while the amplifier claims a 2x70W/8ohm Class AB output and supports up to six analogue sources, including MM/MC phono. The ESS Sabre DAC in the CD50n is joined by custom-designed digital filters; the Model 50 offers traditional tone controls.

Marantz, Kanagawa, Japan, 01903 953580; www.marantz.com/en-gb

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A torrent of tonearms

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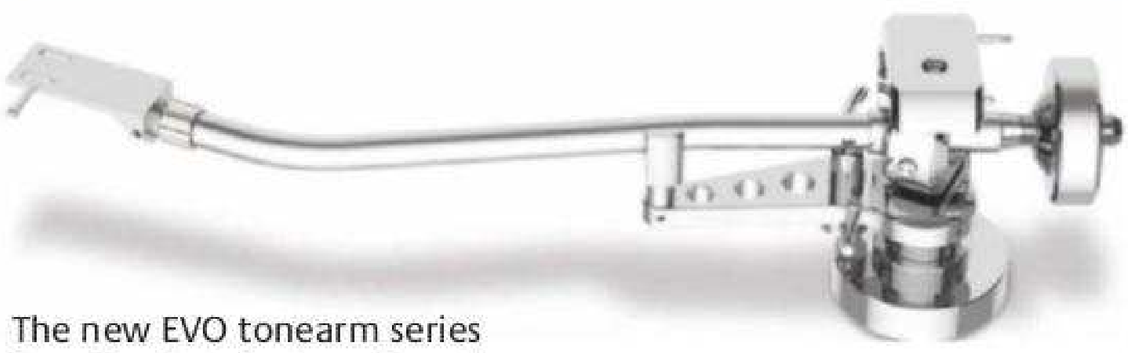

The new EVO tonearm series from Pro-Ject features four tiers, each with 9in, 10in and 12in options, resulting in a 24-model catalogue. Priced from £725 to £2199, the arms are designed to partner turntables in the 'affordable high-end' market, and all feature single-piece conical armtubes, 'super-high-mass' gimbals on four-point cardan bearings and VTA and azimuth adjustment.

Carbon fibre is used for the tube of the entry CC arm, while the step-up AS designs feature S-shaped aluminium tubes and detachable headshells. Next in the range are CA Premium models, which have a carbon fibre layer around an aluminium inner tube, plus silver internal wiring, followed by the flagship AS Premium options [pictured above]. Standard matt black finishes can be upgraded to high-gloss if desired.

Pro-Ject Audio Systems, Austria, 01235 511166; www.project-audio.com

Upcoming Events

INTERNATIONAL DATES FOR YOUR HI-FI DIARY

09-12 JAN	International CES 2024, Las Vegas, USA; *www.ces.tech*
23-25 FEB	Bristol Hi-Fi Show, Marriott City Centre Hotel, Bristol; *www.bristolshow.co.uk*
03 MAR	Spring Audio Jumble 2024, The Angel Leisure Centre, Tonbridge, Kent; *www.audiojumble.co.uk*
22-23 JUN	North West Audio Show, Cranage Hall (De Vere Cranage Estate), Cheshire; *http://audioshow.co.uk*
21-22 SEP	The UK Hi-Fi Show *Live*, Ascot Racecourse Grandstand, Ascot Berkshire SL5 7JX; *www.hifishowlive.com*

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WHAT HI-FI? AWARDS 2022 PRODUCT OF THE YEAR INNOVATION OF THE YEAR KEF Uni-Core

WHAT HI-FI? AWARDS 2020 INNOVATION OF THE YEAR KEF Metamaterial Absorption Technology

EISA AWARD 40 AND TESTARY Best Product 2022-2023 WIRELESS FLOORSTANDING LOUDSPEAKERS KEF LS60 Wireless

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The UK Hi-Fi Show *Live* #1

Words: **Mark Craven** Pictures: **Kevin Nixon & Mark Henninger**

After an absence of three years, the UK Hi-Fi Show *Live* returned to Ascot's iconic Grandstand [above] with enthusiastic visitors bathed in the late summer sunshine as they queued down the high street [lower right] on the last weekend in September.

Once inside the huge venue [below] – the 2nd floor alone spans one-third of a kilometre – visitors were greeted with an illuminated display highlighting just a few of the many visually stunning and technically innovative products on demonstration. The UK Hi-Fi Show *Live* boasted over 200 featured brands plus 30 occupying the Panoramic Headphone Zone with its fabulous 6th floor vista. The number of overseas brand ambassadors on site was unprecedented for a UK event, including special guest Matthias Böde [seen with *Hi-Fi News* editor and show organiser Paul Miller] from Germany's premier hi-fi magazine, *Stereo*. Matthias' special series of Workshops were as popular as ever!

Photographer, Kevin Nixon, was given special access to capture every room before the visitors arrived. The following 12 pages host part one of our two-part celebration of the UK's flagship hi-fi event. Enjoy!

SHOWBLOG Sights and sounds from around the globe

Located on the sixth level of the prestigious Ascot Grandstand, the Panoramic Headphone Zone was the first port of call for anyone eager to audition a new set of cans, a portable DAP or headphone amp/DAC, where the products on demonstration covered price points from entry-level to reference-grade.

Firmly in the latter camp is dCS's Lina [*HFN* Nov '22], which combines Network DAC and Headphone Amp (plus a Master Clock), the first of those utilising the company's bespoke RingDAC technology. Meanwhile, personal audio specialist Hifonix offered demos of a selection of premium designs from brands including Dan Clark, Feliks and Viva, and SCV Distribution delighted listeners with the EarMen 'Stack' [*HFN* Oct '22], plus head-fi solutions from Manley, Meze and Benchmark.

Across the hall, Focal's full headphone line, including the flagship Utopia and Bathys ANC models, was paired with Naim's Uniti Atom Headphone Edition amplifier [*HFN* Aug '21]. Also delivering sweet sounds were the electrostatic CRBN and planar magnetic MM-500 and LCD-X headphones from Audeze, courtesy of KS Distribution. Digital players from South Korea's Astell&Kern were showcased by HEA Distribution as the latest in high-end, on-the-go hi-fi, while JBL's extensive catalogue of wireless over-ear and true wireless in-ear types catered to cable-free setups.

All this, plus much more including Yamaha's 'phone box' demo booth and set-ups from Innuos, Harmony Hi-Fi, Chord Electronics and Boyer Audio, ensured the Panoramic Headphone Zone was packed across the weekend.

Cambridge Audio's AX, CX and Edge series components – plus Alva TT V2 turntable – were available for inspection in the UK company's suite, while demonstrations of its Evo 150 'just-add-speakers' amp [*HFN* Nov '21] ensured visitors lingered. Rated at 2x150W and combining network streaming with analogue/digital hookups plus ESS Sabre DAC, the '150 was run with KEF LS50 Meta loudspeakers [*HFN* Jun '21]. Cambridge also gave silver discs a spin through its matching EVO CD transport. *www.cambridgeaudio.com*

The latest Mk5 iteration of Origin Live's hefty Voyager turntable, fitted with Renown tonearm, kept listeners focused on the music and not the fifth-floor views over the Ascot Racecourse. This range-topping model (also available in upgraded 'S-version' guise) supports up to three tonearms, and features twin Swiss DC motors to drive its belt and multi-layer platter. *www.originlive.com*

Chord Company showcased its range of loudspeaker cables, interconnects and power solutions, and debuted its upgraded Burndy designs for use with Naim Audio hardware. First launched in 2020, the lineup now comprises BurndyT and entry-level BurndyX options, the latter featuring XLPE insulation and ChorAlloy-plated connectors. *www.chord.co.uk*

B&W's 805 D4 Signature was in fine form in a system with Classé's Delta PRE preamp [*HFN* Jun '21] and Delta Stereo power amp. Sibling to the floorstanding 801 D4 Signature [*HFN* Sep '23], it pairs a Diamond Dome tweeter with 165mm Continuum cone bass/mid, and benefits from upgrades to cabinet, crossover, and more. *www.bowerswilkins.com*

The striking Halcro Eclipse Stereo [*HFN* May '23] brought its ultra-low-distortion power to Alta Audio's Alyssa speakers, which marry 6in bass/mid drivers with aluminium ribbon tweeters in an 'Extended Transmission Line' cabinet. Sources in Sound Design Distribution's rack included Grimm Audio's high-end MU1 server/streamer [*HFN* Dec '20]. *www.halcro.com; www.grimmaudio.com*

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S7t, Hi Fi News, April 2022

"...excels when resolving the most subtle of musical moments and nailing the feel and tone of instruments... It all sounded wonderfully three-dimensional."

S4b, Hi Fi News, June 2022

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R7t, Hi Fi News August 2022

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Premium active loudspeaker specialist Kii Audio wowed show-goers with the global debut of its new 'baby' Kii Seven. A standmount with custom waveguided tweeter, 150mm midrange and twin side-mounted woofers, the speaker claims a cardioid dispersion pattern to limit room interactions and offers connections including AES/EBU digital, balanced XLR and Wi-Fi/Bluetooth. Sound Design Distribution paired the Kii Sevens with a Lumin D3 network DAC in a sweet-sounding, clutter-free system. *www.kiiaudio.com*

Sound Fowndations' set-up married the superb Clearaudio Reference Jubilee turntable with DS Audio's Grand Master EX optical cartridge/energiser [both *HFN* Oct '23], plus 'Ioniser' and 'Eccentricity stabiliser'. Furutech cabling was also in the mix to optimise performance. *www.soundfowndations.co.uk*

Supatrac's Blackbird tonearm was the star attraction of a vinyl system including KEF Reference 1 loudspeakers and Technics SL-1200G deck. Visually distinctive thanks to its patented 'sideways uni-pivot' design, the arm's bonded, black carbon fibre tube is available in 9in, 9.3in, 10in and 12in, but custom lengths, wiring, mounts and finishes can be specified. *www.supatrac.com*

Visitors to PMC Distribution's room were able to experience two stunning floorstander-based systems. PMC's own fact fenestria flagships [*HFN* Aug '21], used here with a Bryston pre/power system, combine four ATL-loaded 165mm bass drivers with soft dome treble and midrange in an isolated central baffle, while [inset] the Renaissance ESL 15A from MartinLogan [*HFN* Jan '17] is a hybrid electrostatic, its 'Curvilinear' panel mounted atop a bass section with front- and rear-facing 300mm woofers driven by 2x500W Class D amps. *www.pmc-speakers.com; www.martinlogan.com/en*

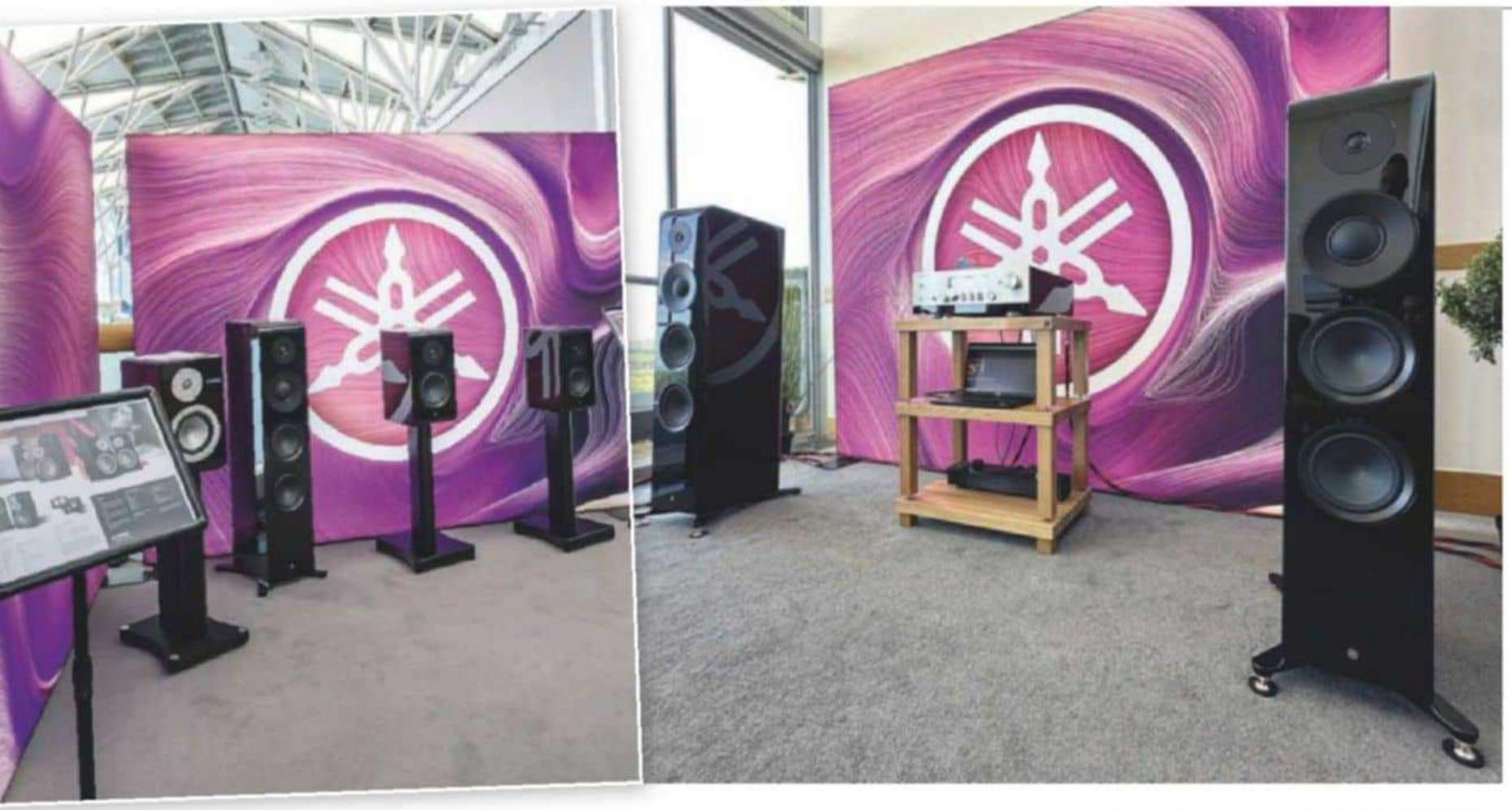
SHOWBLOG Sights and sounds from around the globe

Pro-Ject turntables ranging from the affordable Debut Pro and 'True Balanced' X2 B [*HFN* Sep '22] to the flagship Signature 10 were joined by a selection of its compact separates in demos of the brand's expansive catalogue, with founder Heinz Lichtenegger in attendance. Distributor Henley Audio also took the wraps off Musical Fidelity's M8xTT turntable [inset, see p48], which finds the company – now owned by Lichtenegger – resurrecting the design of its 2004-era M1 vinyl player. *www.henleyaudio.co.uk*

Henley Audio also used the large Ascot Authority suite to demo Klipsch's legendary (AK6) Klipschorn speakers, [*HFN* May '23]. Musical Fidelity Nu-Vista separates, including the PRE/PAS [*HFN* Mar '23], new phono stage and DAC, fed the horn-loaded cabinets, in addition to the RS130 streamer [*HFN* Oct '23] from Korea's HiFi Rose – truly a globetrotting set-up! *www.henleyaudio.co.uk*

Innuos showcased its flagship Statement server [*HFN* Jan '20], and more compact Pulsar network player, in an ear-opening system featuring D'Agostino Progression amplification and Wilson Audio loudspeakers. Music playback was of course handled by the company's Sense app and custom innuOS software, the latter now updated to v2.5. *innuos.com*

Germany's MBL drew plenty of appreciative listeners with a music system combining its Radialstrahler 126 speakers, C51 integrated amp [*HFN* Nov '12] and new C41 network player. The latter supports Roon, AirPlay, UPnP and playback from streaming services, and can function as a preamp for digital sources – connections include USB-B, AES/EBU in/out and S/PDIF. Meanwhile, the '126 speakers are MBL's entry-level, yet leverage technology from the groundbreaking 101 E MkII model [*HFN* Jun '21], including the omni-directional 'pulsating melon' tweeter and mid drivers. *www.mbl.de/en*



Flanked by Yamaha's flagship NS-2000A floorstanders, the brand's EISA Award-winning R-N2000A receiver [*HFN* Jul '23] displayed both its speaker-driving power and a gorgeous design that blends retro controls (and genuine VU meters) with a discreet OLED display. Rated at 2x125W/8ohm, the unit incorporates Yamaha's MusicCast streaming platform and YPAO room correction, alongside connections including HDMI ARC, coaxial, optical, USB-B and MM phono. The imposing NS-2000As, meanwhile, are three-way designs with twin 165mm woofers. *www.uk.yamaha.com*

Rogers' LS5/9 Classic SE loudspeakers [*HFN* May '21], on 55cm-high Panzerholz stands, delivered a captivating performance. Music came from an Audio Note CD 4.1x player, and Rogers' E20a/ii integrated amp, based around four 6L6GT power tubes, proved a fine fit for the BBC cabinets. *www.rogers-hifi.uk*

In Symmetry Systems' sixth-floor suite, Brinkmann Audio's 150W/8ohm Mono amplifiers sat between Wilson Audio Sabrina speakers, while off to the side an impressive kit rack included Brinkmann's Edison MkII phono stage, Nyquist MkII streaming DAC and Marconi MkII preamp, plus Taurus and Oasis direct-drive turntables. Lyra's Etna MC cartridge got into the groove. *www.symmetry-systems.co.uk*

Audiophiles seeking their next system upgrade made a beeline for demonstrations from accessories specialist Russ Andrews, distributor of Kimber Kable. The former introduced its new Clarity Pro 2 system conditioner, alongside revivals of its iconic PowerBlock and PowerKord. Kimber's flagship Naked interconnect [*HFN* Mar '22] and Carbon 18XL speaker cable [*HFN* Oct '22] also featured in systems using PMC twenty5.26i and '22i loudspeakers, and separates from HiFi Rose. *kimber.com*; *www.russandrews.com*

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High-flying models in Naim Audio's New Classic series, and launched to celebrate the Salisbury brand's 50th anniversary, the NSS 333 streamer, NAC 332 preamp and Statement-inspired NAP 350 monoblock make for a formidable system [*HFN* Nov '23]. At the UK Hi-Fi Show *Live* the amps were paired with Naim's NPX 300 outboard PSUs, the stack dovetailing memorably with Sopra N°2 floorstanders [*HFN* Sep '15] from stablemate Focal for a big, detailed performance. *www.naimaudio.com*; *www.focal.com.uk*

Nostalgic sounds abounded as *HFN*'s very own Tim Jarman presented his original Philips CD100 disc player and Motional Feedback loudspeakers in the show's Vintage Village. Tim was joined by Alex Kirkham of London's Wilton Music Mall, with other classic treats including a Gale turntable, Albarry pre/power amplifiers and Meridian separates. *www.wiltonmusicmall.com*

Outperforming its 2x303W/8ohm rating to rank as one of the world's most powerful integrated amps, Hegel's networked H600 [*HFN* Oct '23] is a genuine rival for the Norwegian brand's own P30A/H30A pre/power [*HFN* Jun '23]. Teamed up with the Viking CD player [*HFN* Sep '23], it put EgglestonWorks' Emma Evolution speakers through their paces. *www.hegel.com*

Node Audio's eye-catching Hylixa loudspeaker is a three-way design, its front-facing ring radiator tweeter and Balanced Mode Radiator mid joined by an inward-firing bass unit – the 'double-curved' enclosure, designed to tackle standing waves and limit cabinet diffraction, houses a helical transmission line, hence the speaker's name. Offered in 'infinite' finish options, the Hylixas were here mounted atop Node Audio's new SS-1 isolation feet (sold in sets of three or four), which aim to absorb vibration through a multi-part ceramic/stainless steel/glass nylon design. *www.node-audio.com*

SHOWBLOG Sights and sounds from around the globe

Auralic teamed up with AudioQuest and GoldenEar in the venue's large Old Press Room to showcase its range of network audio separates. Feeding T66 speakers [below right] were the Aries G2.2 transport and Vega G2.2 streamer/DAC [*HFN* Nov '23], both supported by its slick Lightning app. AQ cabling, interconnects and Niagara 5000 power conditioner ensured the system, with Heed Lagrange amp, played to its best. *www.auralic.com*

Another GoldenEar/AQ set-up, in a smaller room, starred its compact BRX speakers [*HFN* Sep '22]. Standmount/bookshelf models, these borrow 'High-Velocity Folded Ribbon' tweeter and bass/mid driver tech from the Triton Reference [*HFN* Jun '19], allied to side-facing ABRs. A snappy, detailed and bass-rich performance confirmed their high-value reputation. *www.goldenear.com*

Pledged as 'the first model in a new T series', GoldenEar's T66 is clearly inspired by the US maker's earlier Triton loudspeakers, being a hybrid with powered, DSP-controlled bass drivers and passive mid/treble units, the latter a 'folded ribbon' AMT. Given space to breathe, the T66s let it rip! *www.goldenear.com*

The rollout of Exposure's well-priced 3510 series [*HFN* Nov '21 & Jul '23] continues, with mono, stereo and preamps now joined by the 3510 CD player. This top-loading disc spinner debuted alongside a surprising new addition to the Exposure range – a turntable designed in conjunction with Rega. Speakers were the LS6/f from Chartwell. *www.exposurehifi.com*

Both the (white) LS60 Wireless [*HFN* Sep '22] and svelte Blade 2 Meta from KEF share a 'single point source' philosophy and metamaterial-enhanced 12th-gen Uni-Q array. The speakers drew plenty of admirers, demo'd here with Chord cabling, an Innuos Zenith server and Hegel H600 integrated amp [*HFN* Oct '23]. *www.kef.com*

A haven for lovers of high-end audio, Absolute Sounds' takeover of Ascot's huge On5 suite demanded a lengthy stay. Offering a taste of the distributor's full catalogue meant some models were on 'static' display, including this awe-inspiring amplifier lineup (including tube, solid-state and hybrid) from Denmark's Copland, the Netherlands' PrimaLuna and France's Jadis, plus turntables from EAT (Austria) and [inset] Reed (Lithuania). Naturally, even more treats from across the globe were in store... *www.absolutesounds.com*

Wilson Audio's Sasha V towers [*HFN* Sep '23], with added weight from a pair of LōKē subwoofers [*HFN* Sep '22] were kept in a tight grip by Audio Research's KT150-based Reference 160M MkII monoblocks and the Momentum MxV Integrated Amplifier from D'Agostino [review in *HFN* Jan '24]. Once heard, this was a hi-fi demo that wouldn't be forgotten! *www.wilsonaudio.com*

Magico's S3 floorstander has been reborn in a MkII iteration with extensive upgrades to cabinet, drivers and crossover. Absolute Sounds added Constellation's Centaur II stereo power amplifier [*HFN* Feb '23] and Takumi K160 monoblocks from Robert Koda, on the end of Dohmann's flagship Helix One Mk3 turntable. *www.magicoaudio.com*

The I/50 from Audio Research [*HFN* Oct '22] is not typical of the marque, being a compact integrated amp offered in six different colourways – although Absolute Sounds brought along a black version [left, below]. Remote controlled, with LexieTube display and DAC/phono options, it was dwarfed by the REF 80S power amp [*HFN* May '21]. *www.audioresearch.com*

The model chosen to launch Absolute Sounds' 'Ten – The Artisan Collection', DeVore Fidelity's O/96 [*HFN* Apr '21] is no simple two-way standmount loudspeaker. Its combination of custom SEAS tweeter, Müller blue paper cone bass/mid and meticulously crafted bass-reflex cabinet yields a performance of sublime sound and high sensitivity. *www.devorefidelity.com*

Also from the distributor's boutique 'Ten' catalogue, Trafomatic's Lara is a two-box line-level preamplifier, with power supply separated from its fully balanced, valve-based Class A audio stage. Lurking behind it were the flagship Elysium mono amplifiers, which claim up to 70W from Eimac 250TL triodes and weigh in at 85kg a piece. *www.trafomaticaudio.com*

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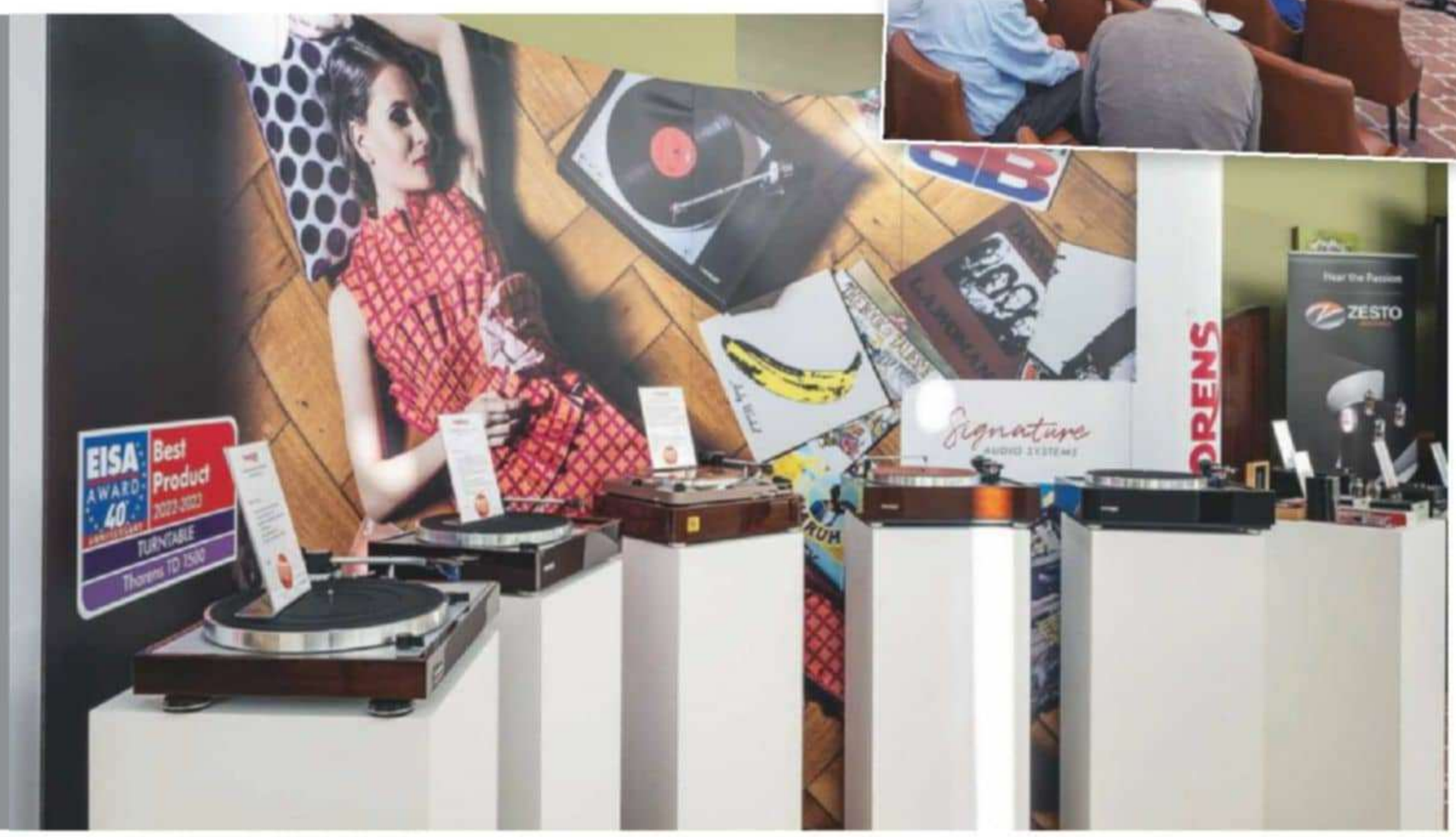
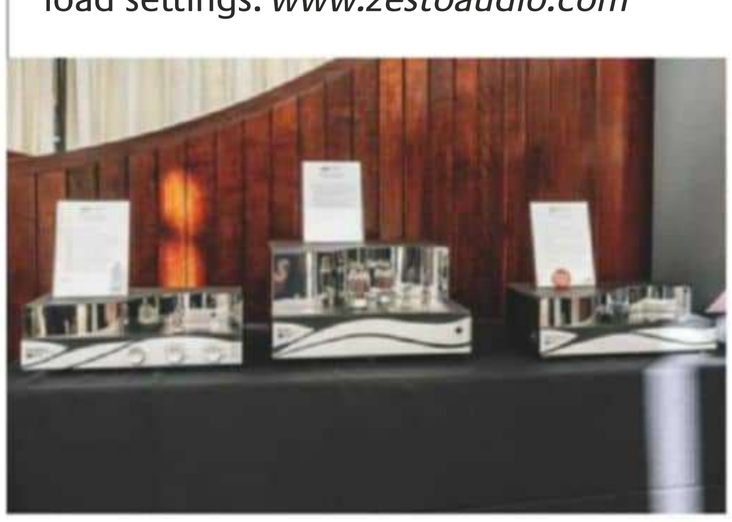
SHOWBLOG Sights and sounds from around the globe

Fast-growing UK distributor Signature Audio Systems held court in the RARC South room with a raft of high-end gems, including Thorens turntables and [inset] PS Audio loudspeakers and separates. Paul McGowan, PS Audio's irrepressible owner, jetted over to host crowd-pleasing demos of a world-exclusive system pairing FR30 and FR20 floorstanders [*HFN* Jun '22 & Apr '23] with the 'no holds barred' BHK 600 Signature monoblocks [*HFN* Dec '22] and FPGA-based DirectStream DAC MK2 [*HFN* Jun '23]. *www.signaturesystems.co.uk*



Based in California but the brainchild of UK-born engineer George Counnas, Zesto Audio specialises in phono stages and pre/power amps – most with slick, swooping casework and all valve-based. Near the top of the range is the Andros Deluxe II phono stage, supporting a balanced MC connection [*HFN* Sep '21] and offering comprehensive gain and load settings. *www.zestoaudio.com*



Potent desktop audio systems from Ferrum featured its EISA Award-winning Wandla DAC/preamp [*HFN* Aug '23] and OOR headphone amplifier [*HFN* Dec '21]. The 768kHz PCM and DSD256-capable Wandla marries an ES9038PRO DAC with Ferrum's custom SERCE module, resulting in extensive filter options, while the OOR is fully balanced from inside to out. *www.ferrum.audio*

Soundsmith is known by audiophiles for its strain gauge systems and moving iron (*aka* 'fixed coil') cartridges, the latter topped by the Hyperion Mk II. Meanwhile, system builders were tempted by the cable range from Clarus, which includes loudspeaker, power, interconnect and digital audio solutions. *www.sound-smith.com*; *www.claruscable.com*

This second Signature set-up married Canor hardware with Canton loudspeakers. The new Reference line from Canton is more overtly 'stylish' than the previous Reference K [*HFN* May & Aug '22], and led by the three-way Reference 7 tower, fed here by components including Canor's CD1.10 player/DAC and the 'pure Class A' Virtus I2 integrated. *www.canton.de*; *www.canor-audio.com*

'Handmade sonic perfection' is the calling card of Floridian brand VAC. Its Master Preamplifier [*HFN* Mar '21], with outboard PSU, can be fitted with an optional phono stage, and was shown at the Hi-Fi Show *Live* with Signature 200iQ amps that offer both mono (200W) and stereo (2x100W) operation, plus 'continuous' automatic tube biasing. *www.vac-amps.com*

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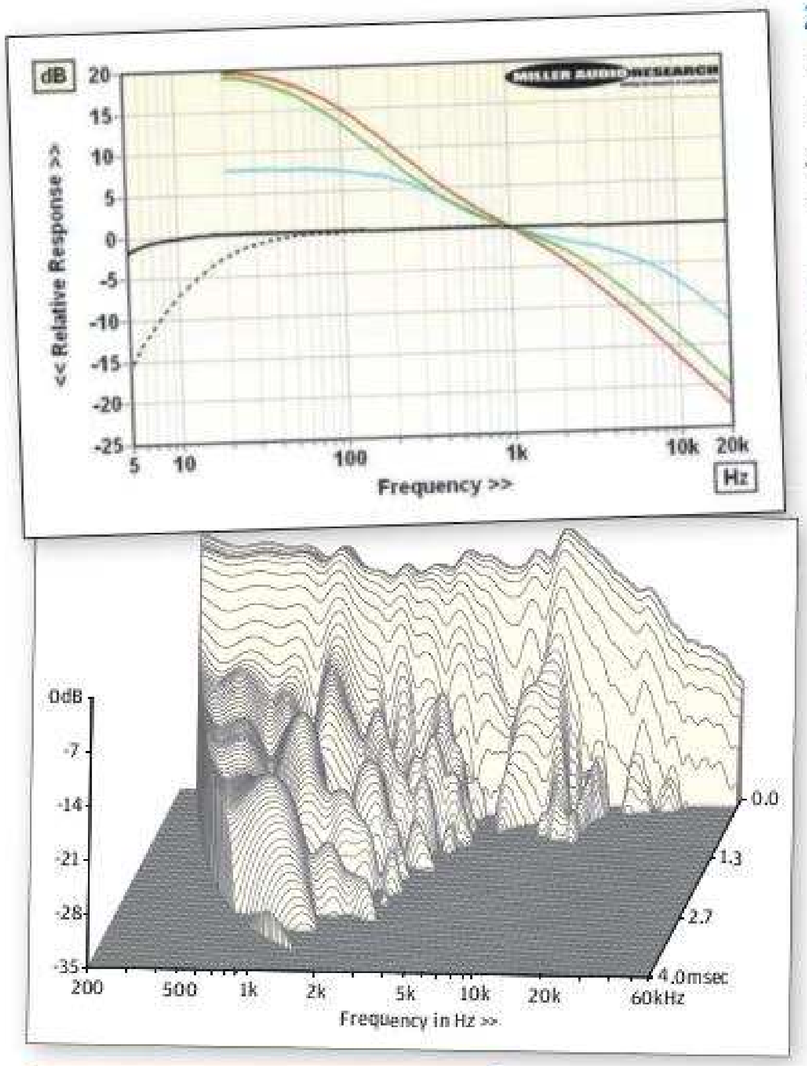

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1. Our hardware reviews are never brief 'hands on' experiences of a product from a press conference, brand-led demo or distributor's back room spun up into a four or five page article.

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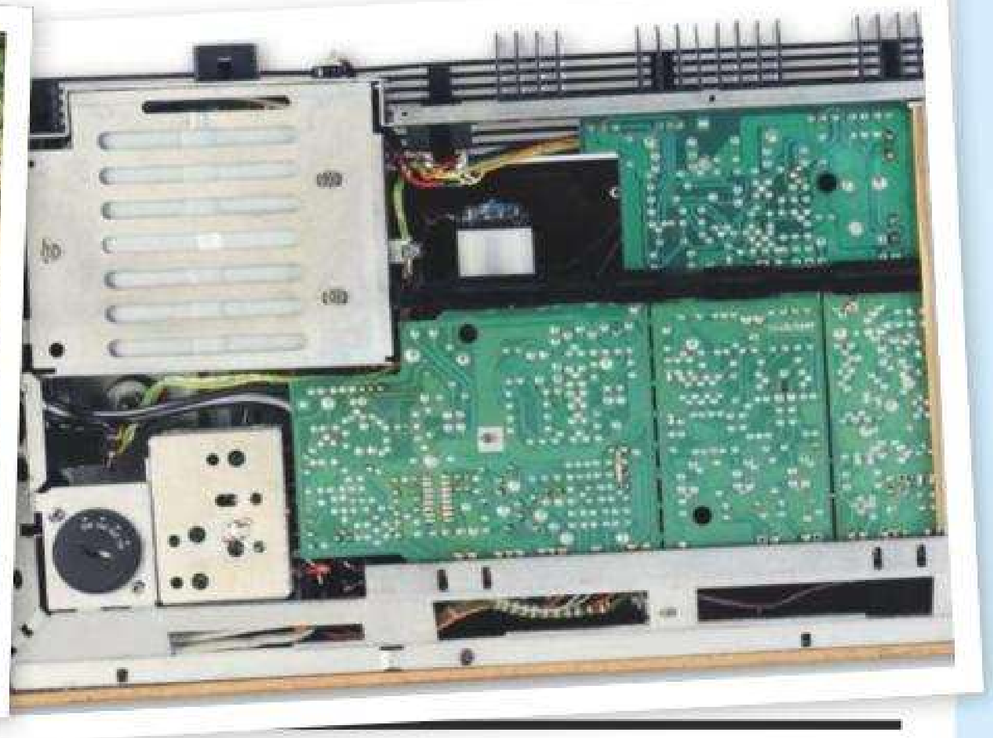
ABOVE: Simon Pope [left] and David Speirs of Burmester [p38] look on hopefully as editor PM (behind the camera) is encouraged to lift the 218 out of its box. He did... see full review, p42

5. Above all we respect our readers. You demand the best reviews informed by decades of experience, product knowledge and technical expertise. We endeavour to live up to that expectation.

IN THIS ISSUE...

RIGHT: Only *Hi-Fi News* takes you up close and personal, outside and in, with our in-depth reviews of pristine vintage gear. Pictured is the underside of B&O's Beomaster 2000 receiver, from 1975, showing its modular PCBs [see p120]

LEFT: Here's an Absolute Sounds staffer unboxing the Trafomatic Rhapsody 300B tube amp from its wooden crate before hefting it inside for listening and lab testing. You saw it at the UK Hi-Fi Show *Live*, now read the review [p56]



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Burmester 077/218

Taking both aesthetic and design cues from the flagship 159 monoblocks, the 218 power amp is the German marque's newest model, teamed here with the 077 preamp

Review: **Andrew Everard** Lab: **Paul Miller**

Never accuse Berlin-based Burmester of timidity... In an interview published to mark the launch of its 216 and 218 power amplifiers, its Team Leader for Quality Management, Thomas Schneider, says, 'We have thought in exactly the right direction'. The 216 amplifier is part of what the company calls its Top Line, and while the 218 may look similar it's actually in the upper tier Reference Line, one step below the Signature Line that features the flagship 159 monoblocks and near-2m-tall BC350 speakers, yours for £233,000 a pair.

Still with me? Well, the 218 is a stereo power amplifier, rated at 165W/8ohm [see PM's Lab Report, p45] while standing almost 22cm tall and weighing 42kg. Hand built to the company's usual standards of solidity and finish, it sells for £34,600 (the 100W 216 is £23,700) and is partnered here with the £35,900 077 preamplifier, a relatively long-running Burmester model, the original version having been launched in 2007 to mark the 30th anniversary of the company's 777 preamplifier.

MODULE CHOICE

Launched as a one-box preamp, with the option of an offboard power supply, the 077 is now only available in two-box form, as a balanced line-only, analogue design, albeit with the option of modules to add digital inputs, MM/MC phono capability and an unbalanced line stage. One module of your choice is included in the price – ours was fitted with the USB-B/coax digital card. RCA-to-XLR adapters are included as is the company's 067 remote handset [see p47], which is £500 when bought separately.

Output from the preamplifier is via balanced XLRs, matching the inputs on the 218 power amp, while an additional BurLink connection allows the amplifiers to be integrated into third-party home automation solutions, including Crestron. Despite being separated by more than 15 years, the 077 and 218 remain a perfect visual match, bridging the eras between the company under the helm of founder Dieter Burmester, and the brand today after his passing in 2015 [see boxout, p46].

The heavy aerospace-quality casework has a decidedly 'technical' look, and while the mirror-finish fascia treatment adds visual appeal, the engraved legends above and below the 077's multifunctional toggles are rather tricky to read. For example, a single control handles phase switching but also toggles the display brightness, while another – at least with the digital input module fitted – chooses between Class 1 and 2 USB operation, selects the digital input in use and enables upsampling to 192kHz.

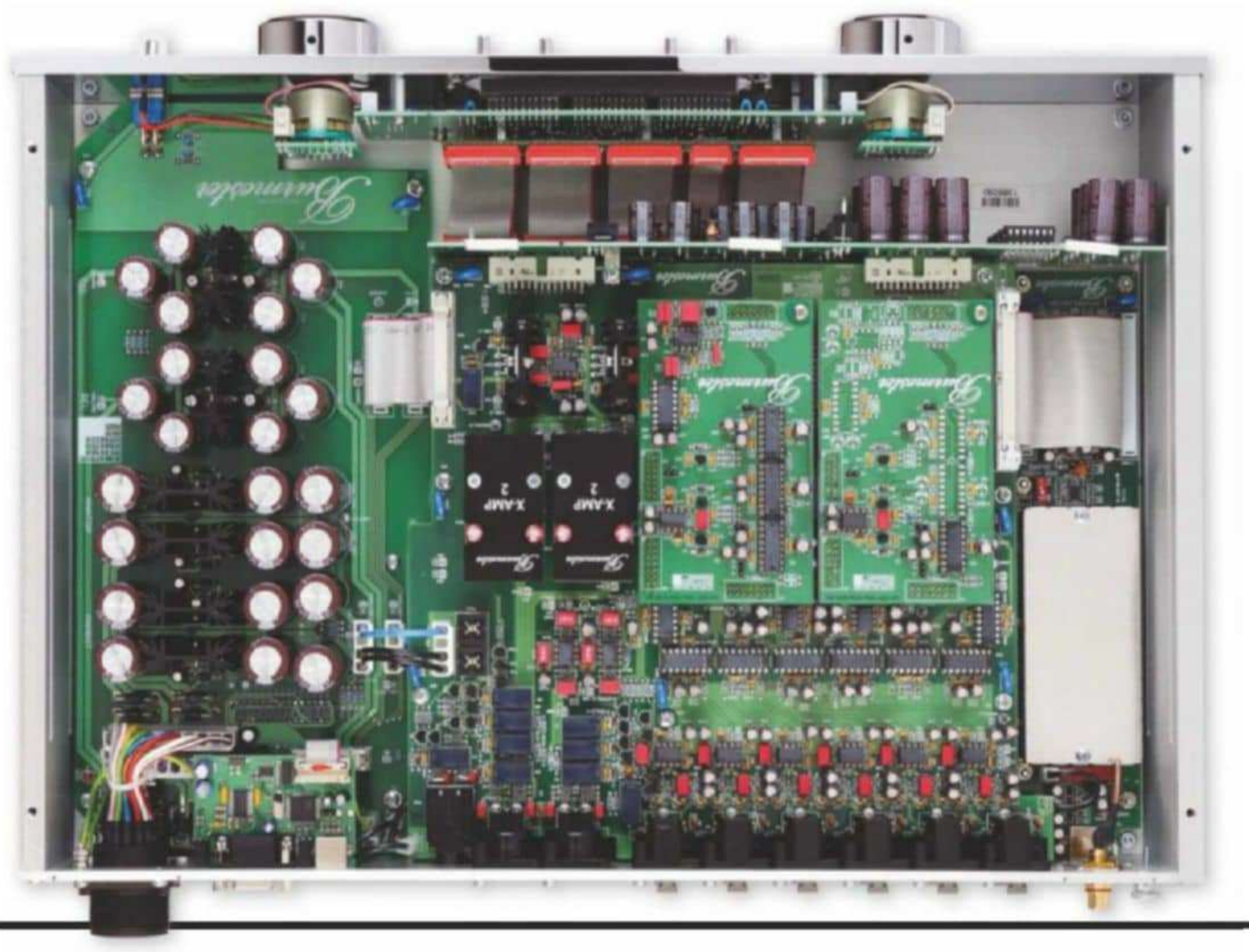
Other controls access the set-up menus, including selecting the main output or the 077's two headphone sockets, the latter somewhat inconveniently located on the rear panel. Input sensitivity, input naming, and so on, is achieved by a combination of up or down movements of the toggles, plus different lengths of hold when doing so.

> 'There was richness with immediacy and detail'

TAKING CONTROL

You can even bypass various switches if required, and while most users will soon become familiar with their basic functionality, it's likely that the supplied remote control, also aluminium-clad, will provide more logical access to the functions of the preamp. Mind you, using the remote deprives you of the tactile 'click-stop' appeal of the 077's chromed volume control. There's not much chance of overshoot through over-enthusiastic twiddling here – in fact, a determinedly positive shove is required to make changes!

The 077 and its power supply are designed to be stacked. As both units have heavy alloy feet, machined to a spike, ⟳



RIGHT: Inside the long-established 077 preamp with digital module installed [lower right], multiple PSU regulation [far left], input gain adjust ICs [bottom right], logic [right] and proprietary 'X-AMP 2' output modules [centre]

hi-finews OUTSTANDING PRODUCT

Pro-Ject
AUDIO SYSTEMS

X8

X8 TURNTABLE

TRUE BALANCED CONNECTION

BRING YOUR MUSIC INTO FOCUS

The X8 is a mass-loaded premium turntable with features more commonly found in more expensive models. From its over-sized, heavyweight wooden plinth, through to the precision-lathed, TPE-damped aluminium main platter, and the 9" Evolution tonearm with a Quintet Blue cartridge. The Pro-Ject X8 is a complete turntable solution for high-end audio systems.

HENLEY AUDIO

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Burmester supplies protective alloy baseplates for each, the 'points' sitting on carbon-fibre discs set into their surface. Completing the attention to detail is the provision of a cleaning spray and microfibre cloth, designed to maintain the units in pristine condition.

The 218 power amp is of a size and mass to make it a definite 'sit on the floor' device, and features massive aluminium top and bottom plates sandwiching heatsinks wrapping around all four corners of the enclosure. Conduction is improved by a copper heatpipe, as the output devices are actually located behind the solid side-panels between the heatsinks [see inside picture, below]. The amplifier is a symmetrical, dual-mono, and DC-coupled design described as 'a

BELOW: Inside the 218 with four pairs of bipolar output devices (from ON Semiconductor) per side [far left and right]. Copper heatpipe connects all the heatsinking [top corners] while a Noratel transformer and 4x100V/47,000µF PSU reservoir caps are under the centre PCB

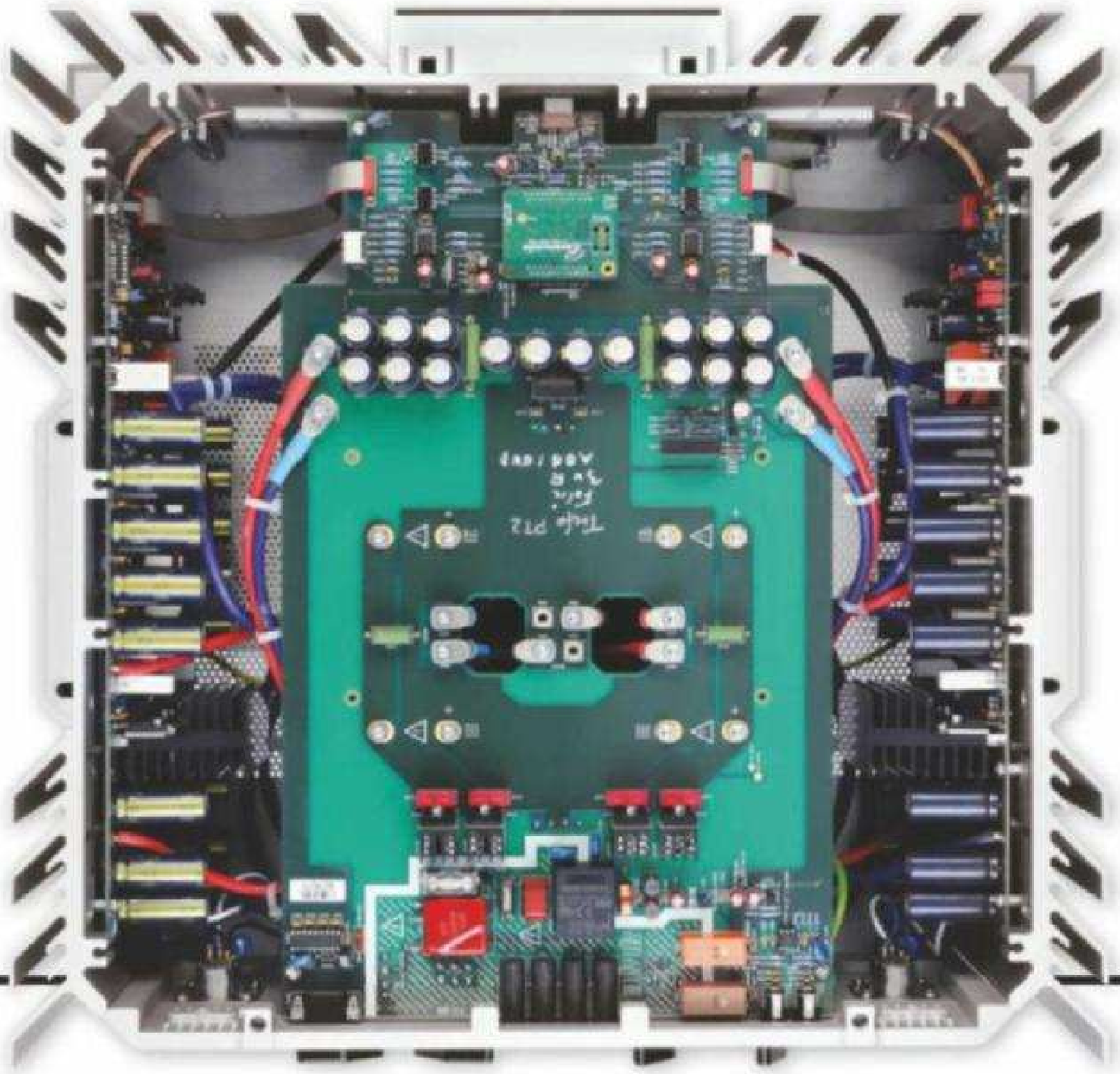
ABOVE: The 218's mirrored frontispiece and architectural fins are both aesthetic and functional, and classic 'Burmester'

three-stage, fully complementary signal amplifier... with targeted compensation techniques and very narrow-tolerance components'. This is the core of Burmester's proprietary X-AMP technology.

POWER DOWN

Around the back, hefty 'winged' terminals are provided for stereo speaker cable connection. The 218 can also be used as a mono amplifier or as part of a bi-amp configuration using dedicated adapter cables, available as accessories from Burmester dealers at £1300 a set.

A single power button is the only control on the front of the amplifier, with a customisable LED changing colour to show on and standby. Again to the rear there are trigger ports as well as that proprietary BurLink connection. The 218 also has an automatic power down after 30 minutes of no signal, which is on by default but ⟳

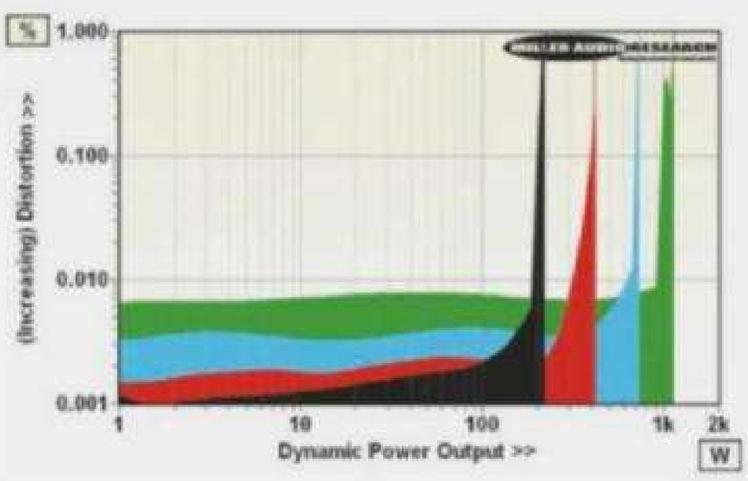


LAB REPORT

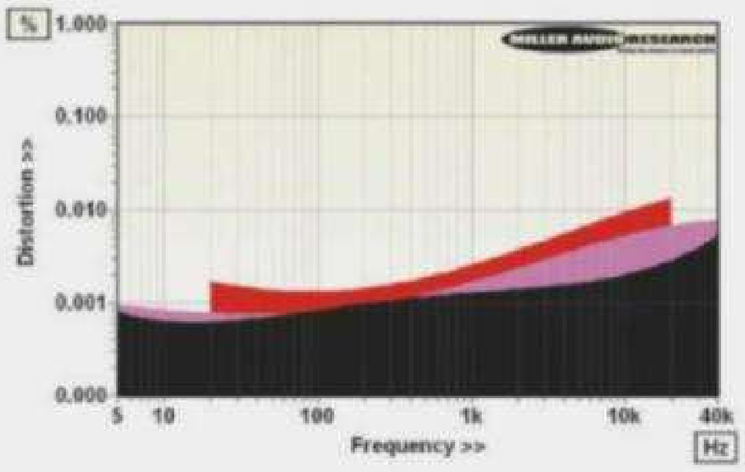
BURMESTER 218

Weighing in at 42kg and very nearly a full half-metre in width, the 218 might be expected to have an equally 'massive' 8ohm power specification. However, while the 218 is rated at a relatively modest 165W/8ohm, and achieves 2x193W/8ohm in practice, the power supply regulation is sufficiently stiff to accommodate peaks at <1% THD of 221W, 419W, 738W and 1.13kW into 8, 4, 2 and 1ohm loads, respectively [see Graph 1, below]. With a current capacity of 34A, the '165W' 218 is thus very tolerant of low and difficult loudspeaker loads. The output impedance is a fairly consistent 0.014-0.019ohm (20Hz-20kHz), maintaining its +0.0dB to –0.06dB response (20Hz-20kHz) into most loads. At the extremes, the 218 dips to –0.5dB/1Hz and –1.15dB/100kHz. Gain is more than high enough at +34.3dB (balanced input) and noise very low, yielding a very wide 95dB (re. 0dBW) A-wtd S/N ratio – so the 218 is a *very* quiet amplifier.

Just as critical, from a subjective standpoint, is the uniformity of the 218's distortion profile, no doubt informed by Burmester's proprietary 'X-AMP technology'. Versus level, distortion remains <0.002% from 1W to 140W and only touches 0.0028% at the rated 165W (all re. 1kHz/8ohm). Versus frequency, distortion gently climbs from 0.0007%/100Hz to 0.0017%/1kHz and 0.008%/20kHz (re. 10W/8ohm), a pattern that holds true at lower and higher power outputs [see Graph 2, below]. Intermodulation distortion is <0.0003% (re. 10W). Finally, stereo separation is a wide 70dB+ (20Hz-20kHz), channel balance/matching is good to 0.01dB and any DC offset at the output is held to below ±2mV – impressive bearing in mind the 218 is a fully DC-coupled/capacitorless amplifier. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 33.6A



ABOVE: Distortion versus frequency versus power output (1W/8ohm, black; 10W, pink; 100W, red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	193W / 320W
Dynamic power (<1% THD, 8/4/2/1ohm)	221W / 419W / 738W / 1131W
Output imp. (20Hz–20kHz/100kHz)	0.014-0.019ohm / 0.053ohm
Freq. resp. (20Hz–20kHz/100kHz)	+0.0dB to –0.06dB/–1.15dB
Input sensitivity (for 0dBW/165W)	55mV / 715mV
A-wtd S/N ratio (re. 0dBW/165W)	94.6dB / 116.8dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.00065-0.0078%
Power consumption (Idle/Rated o/p)	46W / 540W (1W standby)
Dimensions (WHD) / **Weight** (total)	496x216x479mm / 42kg

LEFT: A Burlink 'home automation' interface [top left] is joined by 12V trigger ports [top right], balanced audio inputs (RCA to XLR adapters are provided) and wingnut-style spade/4mm speaker cable terminals

can be bypassed using Burmester's system remote, or via the BurLink port. There's also extensive protection against short circuits, overheating or DC offset, all of which is enabled using circuits lying outside of the direct signal path.

AND... RELAX

Our initial auditioning of these amplifiers kicked off via the 077's USB-B 'computer audio' input, with music fed to the DAC card using Aurender's W20SE music library [*HFN* Mar '23]. Speakers were B&W 801 D4s [*HFN* Nov '21], and it soon became clear that the digital module fitted to the 077, though convenient, was starting to show its age... The sound, while lush and rich in the low frequencies, as one might expect given Burmester's origins as a company created by a bass-player, was somewhat lacking in freshness and vitality in the midband and treble. This was all very relaxing and apparently very 'hi-fi', but the music still lacked spark and excitement, something rapidly addressed by bringing into play dCS's Vivaldi APEX DAC [*HFN* Jun '22], also connected via USB-B to the Aurender W20SE and with a fixed-level output to the 077's analogue inputs.

Tracks that previously sounded rich but slightly anonymous, such as 'On The Sunny Side Of The Street' from the Bill Charlap Trio's *Notes From New York* album [Impulse! download], gained extra sparkle and impetus, no longer sounding like a slightly snoozy late afternoon hi-fi demonstration. And Bonobo's 'Otomo', from his *Fragments* album [Ninja Tune ZENDNL 279], previously distinguished only by its big, thundering bassline which was more about weight than impact, took on extra detail and became faster-sounding and more interesting as a result.

Even those tracks I'd found satisfying when run through the preamp's internal DAC gained new life with the dCS player/DAC in harness, allowing the Burmester amplifiers to deliver all their warmth and weight while gaining new presence. 'Angel Eyes', from Carmen Gomes Inc.'s *Thousand Shades Of Blue* [Sound Liaison SL-1001A], which is definitely a demonstration-quality recording, combined richness with immediacy and a more detailed view of the singer's voice. Similarly, the slow burn of the 3rd movement of Elgar's First Symphony [Staatskapelle Berlin/Barenboim; Decca 478 9353] brought together stateliness and scale, complemented by a detailed insight into what each section of the orchestra was doing.

SAX APPEAL

True, the Roger Waters take on 'Money' from his *Dark Side Of The Moon Redux* set [SGB Music download] arguably sounded a little slow, if melodramatic, but one can hardly blame the 077/218 amplifiers for that. By contrast, the Espen Eriksen trio/Andy Sheppard 'Passion' from the recent *As Good As It Gets* release [Rune Grammofon RCD2233] demonstrated much better pace and openness, together with a fine reedy tonality to Sheppard's sax. Furthermore, Fleur Barron's performance of Purcell's 'When I Am Laid In Earth', from the La Nuova Musica recording of *Dido and Aeneas* [Pentatone PTC 5187032], was positively spine-tingling.

So, yes, this Burmester combination remains warm, generous and still somewhat polite-sounding by comparison with some more obviously upfront amplifier systems, but the immediacy, the thrill and sheer amount of detail thrust at the listener by those latter amplifiers is not always a recipe for satisfaction in the longer term. Moreover, the 077/218 pairing maintains a firm grip on speakers such as the big Bowers & Wilkins floorstanders, which benefit from both confident driving and control if they're not to dominate proceedings.

BURMESTER'S 45 YEARS

As a company so rooted in the vision of one man, founder Dieter Burmester, it's pleasing to see the brand still flourishing after his sudden passing in 2015, at the age of just 69. But then the company's origin story is a familiar one, albeit with a solid musical twist: by the age of 15, Burmester was playing electric bass in bands, a passion he would follow for his entire life, and working on ways of improving the valve amp he'd built for his instrument. Scroll forward 15 years, and Burmester, by now a qualified radio and TV technician, with a degree in electrical engineering, founded the company that bore his name, moving on from valve amps to solid-state designs.

Just 20 examples of his first amplifier were produced, carrying the company name in what he later discovered was a near-perfect facsimile of his father's handwriting. By 1983 he was making his first balanced power amplifier, followed four years later with an innovative upsampling CD player, and then a belt-drive transport carried through to Burmester's players of today. Speakers followed, using AMT tweeters, as part of a 'whole system' philosophy, and in 2002 he branched out into automotive audio systems... via the Bugatti Veyron 16.4! Burmester was also an early adopter of computer-stored music, its first 'music centres' able to rip CDs to internal storage, as well as handling Internet radio and other streaming services, arriving more than a decade ago [*HFN* Dec '12].

In 2015 the company passed to Dieter's widow, Marianne, who brought in former Porsche Marketing Director Andreas Henke as co-chairman in 2017. To this day the company remains 100% family owned, while the development, engineering and hand-assembly of its products are still carried out in Berlin – where it all started – under the watchful eye of Chief Technical Officer and head of audio design Stefan Grösler, who worked for many years alongside Dieter Burmester on many classic projects.

ABOVE: Both the 077 preamp [top] and partnering 077 PSU [bottom] sit on alloy bases with spikes located onto inset carbon-fibre discs. Six balanced line ins and one optional module (either DAC or MM/MC phono) are offered alongside balanced pre and tape outs, two 6.35mm headphone outs, BurLink, trigger and USB (update) ports

The grip that's exercised here might be concealed to some extent by the innate richness of the 077/218's presentation, but it's clearly there in the intimate 'in the room' presentation of Ed Sheeran's 'England' from *Autumn Variations* [Gingerbread Man Records 5054197767272], with superb vocal and instrumental colours. It's even more obvious with the languid country of 'Songs That She Sang In The Shower' from Jason Isbell's 10th anniversary release of *Southeastern* [Southeastern Records SER9984-10DX], which shows excellent three-dimensional soundstaging.

This ability to let voices and instruments cut through that seemingly rich, 'easy listening' sound is also apparent with Magdalena Kožená's voice on her lovely *Folk Songs* set of little vignettes, with the Czech Philharmonic under Sir Simon Rattle – yet another beautifully judged Pentatone recording [PTC 5187075]. Meanwhile the 218 power amplifier proved capable of serious dynamics on the 'March From 1941' on the Jerry Junkin/Dallas Winds *John Williams At The Movies* release [Reference Recordings RR-142], with crisply resolved snares and startling bass drum strikes. And yes, it really swings with those marching tempi.

LEFT: Burmester's full system 067 remote is a heavyweight alloy casting that confers full control over its amplifiers and digital components

LISTENING PLEASURE

Play another Reference set, the Oue/Minnesota Orchestra recording of Respighi [RR-95], and the 'Pini di Roma' sounds suitably dramatic, exuberant and cinematic. Indeed, the scale these amps can deliver is perfectly measured against the detail and tonal shading of the performance, however carried away you get with that weighted volume control. And so, in the round, while this Burmester duo undoubtedly has a 'sound', it's one carefully tailored to delight the listener, and for many this mixture of ease of listening and richly delineated detail will be exceptionally attractive.

HI-FI NEWS VERDICT

The distinctively rich presentation of the 077/218 pre/power amplifiers may be at odds with the apocryphal Germanic 'sound tuning', but there's no doubt they are superbly easy to enjoy, while at the same time conveying the spirit and emotion of the music. Add in the solid engineering and lavish styling, and there's no gainsaying the appeal of these luxurious components. Nor, indeed, the sound they deliver.

Sound Quality: 87%

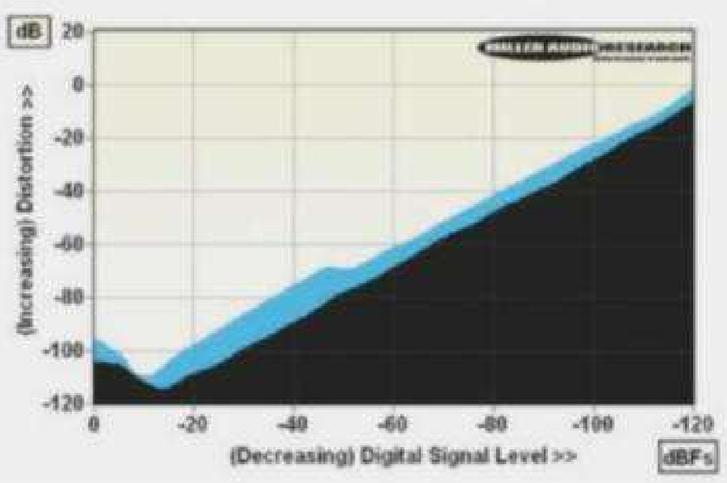
0 - - - - - - - - - 100

LAB REPORT

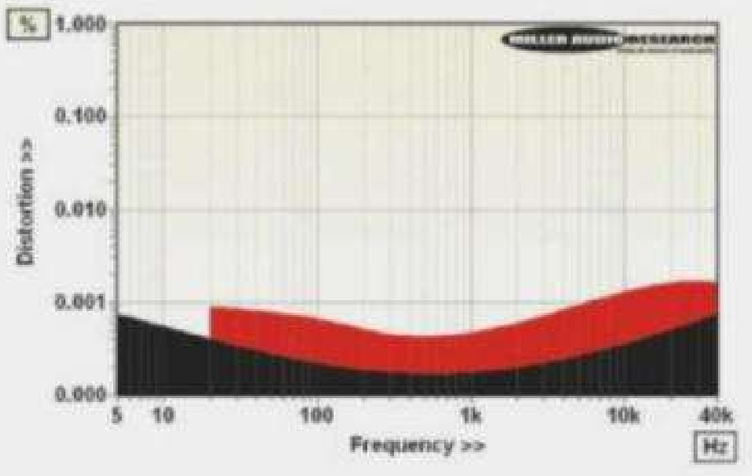
BURMESTER 077

Burmester's 60-step volume control operates with a mix of 1dB and 2dB steps (one 2dB step for every three 1dB steps) to offer a reliable 80dB range and a channel balance error of <0.1dB down to volume setting '15'. Gain is variable within either 'Low' or 'High' master modes, with the default '00' gain setting offering +3.5dB (or +6.5dB in 'High') adjustable to +15.6dB and +19.2dB (+12dB input gain setting in 'Low' and 'High' modes) and down to –2.5dB and +13.1dB (–06dB gain setting in 'Low' and 'High'). The maximum output(s) are 3.5V in 'Low' and 21.5V in 'High' M-Out modes regardless of input level 'gain' settings. Output impedance is 112ohm in 'Low' and 64ohm in 'High', and the A-wtd S/N is 99.1dB and 92.5dB, respectively, but there is no difference in the ±0.0dB response (20Hz-20kHz) which reaches +0.5dB/1Hz and –1.45dB/100kHz. Distortion is lowest in 'Low' mode at 0.00015-0.0003% [20Hz-20kHz, 0dBV; black trace, Graph 2] with 2nd-4th harmonics dominating.

Used as a DAC/preamp with upsampling enabled, the 077 delivers a 2.63V balanced output for a 0dBFs digital input (the output clips beyond volume position '55'). Distortion is a low 0.0006-0.0016% (re. 20Hz-20kHz) at this full scale input [see red trace, Graph 2] and falls to a minimum of 0.0003%/1kHz and a *lower* 0.00009%/20kHz over the top 30dB of its range [Graph 1]. The A-wtd S/N is a fine 109dB, linearity good to ±0.2dB over a 100dB range and channel separation is an excellent 130dB. Wolfson's WM8741 DAC [see Burmester 069, *HFN* Jan '12] has built-in jitter rejection (all sample rates <10psec), while the linear phase digital filter confers 99dB stopband rejection and a 'digital' response of –0.0dB/20kHz, –2.1dB/45kHz and –14.5dB/90kHz with 48kHz, 96kHz and 192kHz media, respectively. **PM**



ABOVE: Distortion versus 24-bit digital signal level over a 120dB range at 1kHz (black) and 20kHz (blue)



ABOVE: Distortion versus frequency at 0dBV output [96kHz/24-bit digital in, red; analogue in, black]

HI-FI NEWS SPECIFICATIONS

Maximum output / **Impedance**	2.63V / 112ohm (balanced)
Input sensitivity (re. 0dBV)	666mV (balanced)
Freq. resp. (20Hz-20kHz/100kHz)	+0.0 to –0.01dB/–1.45dB (pre)
Freq. resp. (20Hz-20k/45k/90kHz)	+0.0 to –0.04/–2.10/–14.5dB (DAC)
Digital jitter (USB at 48kHz/96kHz)	8psec / 9psec
A-wtd S/N ratio (re. 0dBV/0dBFs)	98.8dB (Analogue) / 109.2dB (Dig)
Distortion (20Hz-20kHz; 0dBV/0dBFs)	0.00015-0.0003%/0.0006-0.0016%
Power consumption	52W (W standby)
Dimensions (WHD) / **Weight** (w PSU)	450x156x346mm / 25kg (51kg)

Belt-driven turntable system with electronic speed control
Made by: Musical Fidelity (Audio Tuning Vertriebs GmbH), Austria
Supplied by: Henley Audio Ltd, UK
Telephone: 01235 511166
Web: www.musicalfidelity.com; www.henleyaudio.co.uk
Price: £8249 (inc. arm)

Musical Fidelity M8xTT

Inspired by Musical Fidelity's statuesque, near all-acrylic M1 turntable from 2004, the brand's new owners have reimagined the design to partner its massive Nu-Vista amps

Review: **Adam Smith** Lab: **Paul Miller**

There can be no doubt that retro is 'in'. From cars to kitchen appliances to hi-fi, many manufacturers are taking inspiration from the past and bringing famous and fondly remembered designs into the 21st century. The acquisition of the Musical Fidelity brand back in 2018 by Heinz Lichtenegger's Audio Tuning Vertriebs GmbH has given the company a very extensive and highly capable back-catalogue to mine. As a result, Audio Tuning (parent of the ubiquitous Pro-Ject marque), has taken the opportunity to boost its portfolio with a spot of retro fever.

In addition to the obvious choice of a re-birth of the classic A1 amplifier [first full technical review next month] and the 'left-field' development of BBC-style LS3/5A and LS5/9 loudspeakers, Lichtenegger has wisely chosen to focus on the top-end of Musical Fidelity's historic lineup. The huge Nu-Vista amplifiers were the first fruits of this endeavour [*HFN* Mar & Aug '23], but the latest release is a re-working of a somewhat lesser-known Musical Fidelity creation – the M1 turntable [*HFN* Mar '04] – in the form of the £8249 M8xTT.

BIGGER BOOTS

The basic construction of the M8xTT will be familiar to anyone who has encountered an M1 [see PM's boxout, p49]. The plinth consists of two layers of clear acrylic that sit at different levels on four specially-designed aluminium feet. These are both 'magnetically supported' and damped with a soft TPE polymer. Unlike the original M1's feet, the M8xTT's bigger boots comprise two parts and are adjustable to level the deck – they support both layers of the acrylic plinth but have Teflon spacers in-between which help isolate the two slabs.

The turntable motor sits in a special foam gasket on the lower plinth and locates in a cut-out within the upper layer without making any physical contact. The supplied DC PSU connects directly to the motor unit and a clean sinewave is regenerated inside the assembly to run the motor, which is an AC type [see PM's Lab Report, p51]. A future upgrade option is in the pipeline, in the form of an outboard, higher specification linear DC PSU. Drive is transferred to the lower platter's edge via a precision-ground silicone belt.

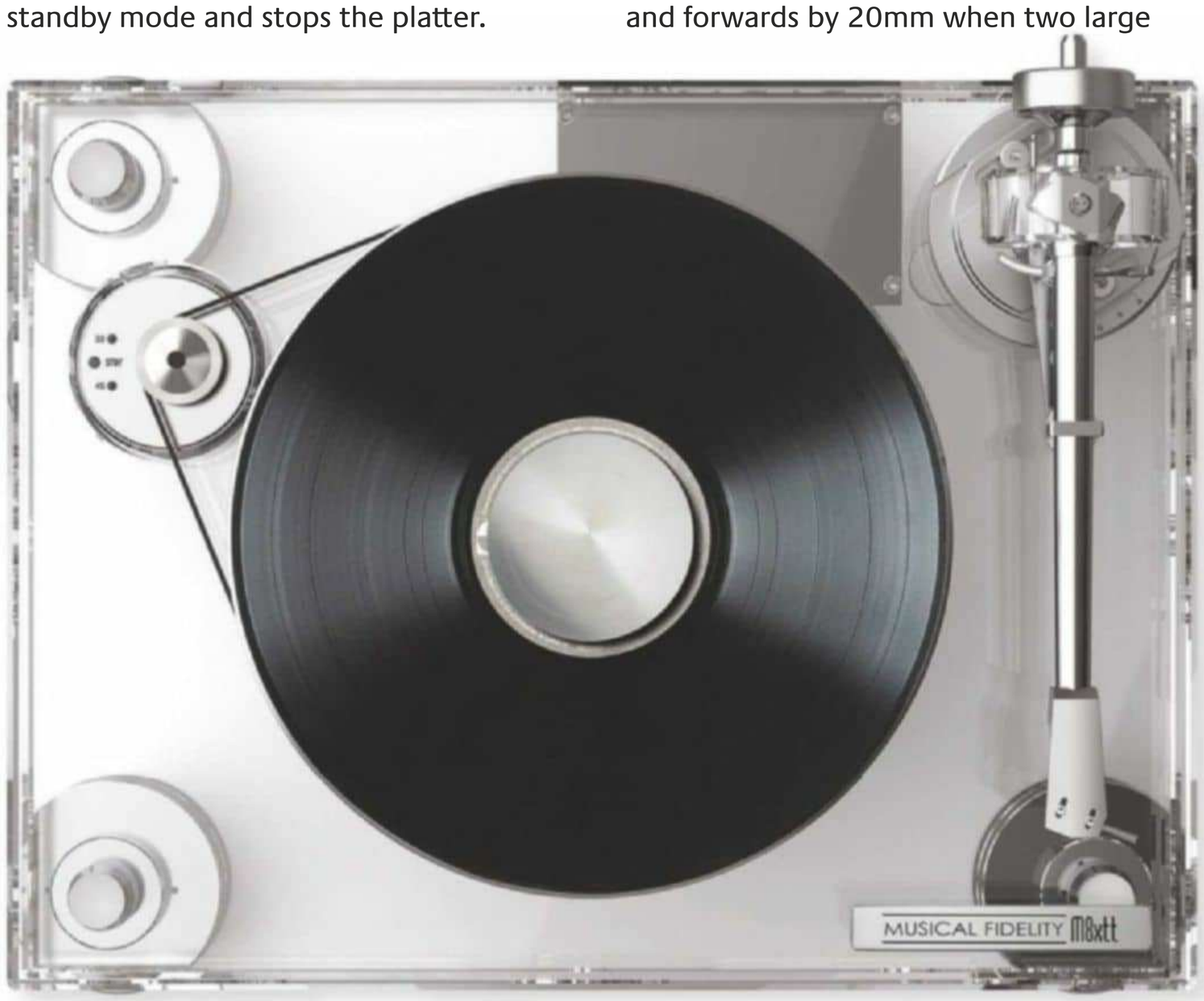
Operation is simplicity itself, with a single switch on the motor pod starting and stopping the platter and selecting the speed. The switch button illuminates green on power-up, indicating that the deck is in standby mode. Short presses then toggle the setting between 33.3 or 45rpm, each with an indicative blue LED that flashes until the platter is up to speed, then illuminates steadily. A longer press returns the deck to standby mode and stops the platter.

The platter itself is a substantial affair, tipping the scales at 10kg. It consists of two layers of aluminium with aluminium inserts in-between, which recalls the M1's two-layer acrylic platter with its peripheral weights. Both top and bottom layers are damped with more TPE and a rather swish leather platter mat is supplied as standard. An aluminium record puck weighing in at 315g presses the record into this mat.

> 'The vocals were both uplifting and insightful'

The arm mounted on this deck is a 10in design and, while it bears a superficial resemblance to existing Pro-Ject tonearms, it is actually all-new for the M8xTT.

Most obvious is a large Plexiglass/acrylic bearing housing that is hand-polished and annealed. The armtube is tapered and precisely machined from a single piece, and is adjustable for azimuth. The armbase has a distinctly SME-like appearance and the whole arm mount can be slid backwards and forwards by 20mm when two large



RIGHT: An AC motor drives the M8xTT's 10kg alloy platter via a round-section belt, with electronic speed selection provided [top left]. The partnering 10in tonearm, with Plexiglass bearing yoke, is a new and heavyweight design

LEFT: Topped by a leather mat, the two-piece alloy platter is bonded via a series of peripheral metal cylinders – both 'discs' are damped with a thick inset ring of TPE polymer. There is no suspension but both acrylic chassis are supported on four huge, TPE-damped feet

Allen bolts are loosened. Pro-Ject also suggests that a range of armbases will be available in due course to accommodate alternative arms.

KEEPING TRACK

Two counterweights are provided that will balance cartridge bodyweights of between 6-20g, and both are TPE-damped and isolated from the threaded adjuster to minimise resonances. The setup is not calibrated, however, so a good stylus balance – perhaps Pro-Ject's £20 Measure it E – is a must for setting tracking force. Bias is applied by the thread and weight system, and a support rod for the thread is fitted to the bearing housing.

The M8xTT's arm features a standard 5-pin output socket and requires the connection of a short flying lead from the termination box located on the lower plinth during assembly. This junction box offers outputs in both balanced XLR and unbalanced RCA formats, plus a ground terminal. Fit and finish of the turntable is nothing short of outstanding but, when setting up your cartridge, be aware that the headshell lacks sufficient offset angle so you'll need to rotate your MM or MC slightly inwards.

A VIEW TO A THRILL

With the deck set up and my Clearaudio MC Essence pick-up [*HFN* Aug '17] installed, I was reminded of a quip made by editor PM when I arrived to collect it. He had mused whether it would sound quite as solid yet transparent as it looks. It turns out that he was spot on. The M8xTT presents a beautifully open window onto the performance, but it achieves this in a commandingly authoritative manner. The old M1 was always a little soft at the low end; in this respect, Musical Fidelity's new model couldn't be more different.

In general terms, the M8xTT puts you at the heart of the action. Some turntables effectively seem to seat you in the 'upper circle' of a performance and spread the music out wide and into the distance behind the loudspeakers. The M8xTT instead places you front and centre in the stalls, and it draws performers out into your listening room right in front of you in a manner that is quite uncanny on occasion.

But let's return to that solid guiding hand for a moment. One of my tried and trusted tests for low-end impact has long been the introduction to the title track of The Eagles' *Long Road Out Of Eden* LP [Universal 0602517546950], where a bell tolls in the distance. Reproducing the bell is easy and so is placing it in the back of the soundstage. Adding a proper sense of weight to what is actually a fairly quiet background effect is trickier, but the M8xTT made the task seem effortless.

When called upon to recreate the same effect in a main performance, the M8xTT also rose to the challenge. The drum strikes on Nanci Griffiths' 'Late Night Grande Hotel' [MCA MCST 1566] were reproduced with a snappy precision, but also a fine sense of atmosphere as the hint of echo after each beat remained. The weighty piano during the song's intro was just as well defined, and Miss Griffiths' vocals came across as heartfelt and emotive.

LIGHT TOUCH

Fortunately, this was in no way due to any sense of overblown 'bloom' at the low end. In bass terms generally, the M8xTT is detailed and taut, with a fluidity to its upper bass that is particularly pleasing. The offbeat bassline to Bob Marley's 'Waiting In Vain' [*Legend: The Best Of Bob Marley And The Wailers*; Island Records BMW1] skipped along with a lightness of touch and separation of each note that seemed

MUSICAL FIDELITY M1

'The Musical Fidelity M1 is a head-turner' [*HFN* Mar '04], and the new M8xTT certainly has no less stop-you-in-your-tracks appeal. But while that inaugural deck established the industrial design that would be copied some 20 years later, there are fundamental differences in their respective engineering. Most obviously the M1 featured a two-piece acrylic platter, each 'disc' some 30mm-thick, sandwiching eight cylindrical spacer weights that brought the total rotating mass to 5.7kg. The ~70mm deep platter allowed the use of a long, inverted bearing shaft measuring 60x13mm with a spiral 'keeper' groove machined into its surface. However, while the platter was about half the weight of today's all-alloy solution, start-up time was a lethargic 25 seconds thanks, in part, to the low-torque DC motor (with ±3% fine speed control). And the arm? That was SME's then-new M2 – available in 9-12in lengths and equipped with a detachable headshell, it was described at the time as 'a 3009 for the 21st century'. And the sound? 'Tactile and colourful'! PM

Clearly, limitless.

"It's almost as if the streamer is stripping away everything that isn't music and presenting the DAC with the signal alone with precise yet fluent form that sounds so right it's uncanny."

Jason Kennedy | **hi-fi+**

"The new Core module is not only a must for those who wish to obtain the absolute best sound quality—but also for those who desire zero-config, true Plug & Play functionality."

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info@eliteaudiouk.com
eliteaudiouk.com

ABOVE: A DIN-terminated audio cable plugs into the base of the tonearm, serving a terminal box that offers both RCA and balanced XLR outputs (the latter for MCs only). An outboard 'wall wart' DC PSU feeds directly into the AC motor housing

at odds with the large, heavyweight turntable sitting on my rack.

This sense of musical control extends up through the midband, where the M8xTT displays impressive skills in terms of performer and instrumental placement. No, it doesn't quite have the image width of a Michell Orbe or the front-to-back stage depth of an SME Model 12 Mk2 [*HFN* Jan '23], but few turntables do. What it does have is a knack of ensuring individual elements of a track are kept clear in their own space. You might find yourself occasionally picking up on something within a piece and wondering if you'd noticed it before.

SILKY SMOOTH

In the top end, Musical Fidelity's turntable is clean, silky and open. The tonearm worked superbly with my Clearaudio MC Essence cartridge, playing to its strengths of insight and clarity but without undue hardness or 'spit'. This meant crisp yet smooth cymbals and percussion, and stringed instruments imbued with a sense of realism, but no screech or discomfort. The potential to use the M8xTT with other tonearms is appealing, and I can think of a few that I would be interested to try. That said, I have a suspicion that any swap would also serve to illustrate that MF's in-house 10in tonearm really is something of a star, and well matched to the rest of the design.

While the M8xTT generally beguiles in terms of rhythm, impact and its ability to unravel complex melodies, some of the most memorable sessions I had with this deck involved material that was a lot simpler. The track 'Anyway' from Dutch singer Elles Springs' *Reveal* album [Vertere Records VLR-001-ELLES] features nothing more than vocals, acoustic/slide guitars and acoustic bass, but the rendition offered by Musical Fidelity's new turntable was both uplifting and insightful. Springs' soft, airy vocals sounded lifelike as they projected from my loudspeakers, while the acoustic guitar, gently played in the background by Caroline Kamp, showed plenty of subtle detail.

RIB-TICKLING

And the acoustic bass? Well, that was truly vibrant. Each string pluck was vivid, with the rich and fulsome tone that makes the instrument such a joy to behold. However, while appreciating this, I was also aware that those chunky bass notes were reaching me as much through my ribcage as my ears. There really is nothing quite like both hearing and *feeling* a performance like this, which is where the M8xTT acquits itself with architectural style.

HI-FI NEWS VERDICT

The Musical Fidelity M8xTT is a masterclass in taking a classic design and bringing it right up to date. While physically and sonically reminiscent of its forebear [see boxout, p49], the M8xTT has been raised up by Pro-Ject's turntable designers – and there's the promise of more to come with the upgraded PSU. Superbly built and very fine sounding, the M8xTT is a welcome touch of 'modern retro'.

Sound Quality: 86%

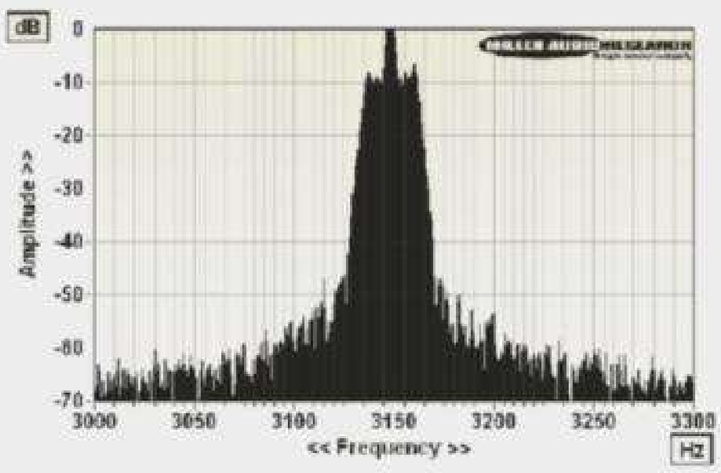
0 - - - - - - - - - 100

LAB REPORT

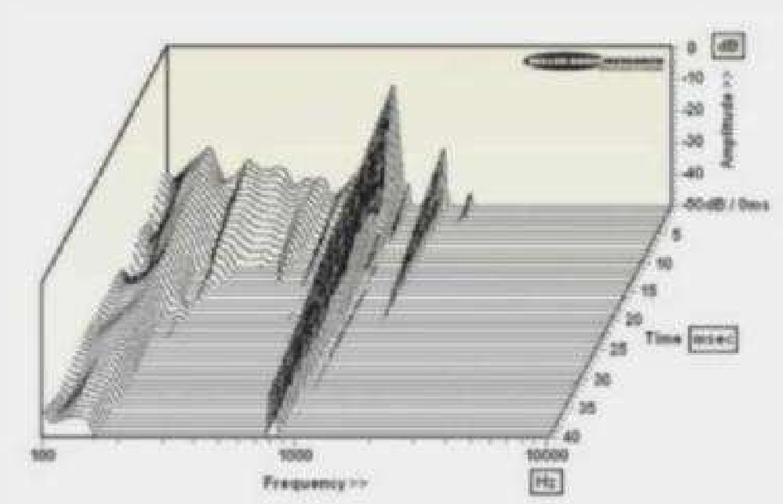
MUSICAL FIDELITY M8XTT

While the M8xTT's architectural DNA can clearly be traced back to the M1 [boxout, p49], including its retention of an inverted bearing, this latest version benefits from improved tolerances and materials. Notably, the 'joined platters' are alloy here, not acrylic, taking the rotating mass to 10kg while the bearing point is now ceramic rather than hardened steel. The upshot is a very low –71.5dB bearing rumble, reduced still further to a spectacular –73.5dB when measured through-the-groove with the record weight in place (20Hz-20kHz, DIN-B wtd re. 1kHz/5cm/sec). The undersized platter spindle assists in reducing the direct transmission of bearing noise into the vinyl LP substrate, ensuring one of the 'quietest' platters of any deck tested in *HFN*. Start-up time is a leisurely 7-8secs and the (absolute) speed error is a minimal –0.05%, however, and despite the original DC motor being replaced by a synchronous AC type here, the M8xTT suffers from a low-rate drift that contributes to a high (by the standards of its own Pro-Ject decks) 0.22% peak wow [see Graph 1, below].

The partnering 10in tonearm is very substantial indeed, its chromed and tapered tube terminated in a large, fixed headshell (the cartridge mounting slots achieve the correct offset angle even if the 'shell itself looks too 'straight'). Effective mass is a very high 18-19g so low compliance MCs are *de rigueur*. The massive acrylic yoke surrounding the bearing proper successfully diffuses any very low frequency tube modes, so there is 'energy' from 20-80Hz on the CSD waterfall but no distinct resonances. Instead, there is a (harmonic) mode at 140Hz and a higher-Q bending at 810Hz associated with the headshell platform [see Graph 2]. Bearing play is imperceptible and friction <10mg. **PM**



ABOVE: Wow and flutter re. 3150Hz tone at 5cm/sec (plotted ±150Hz, 5Hz per minor division)



ABOVE: Cumulative tonearm resonant decay spectrum, illustrating various bearing, pillar and 'tube' vibration modes spanning 100Hz-10kHz over 40msec

HI-FI NEWS SPECIFICATIONS

Turntable speed error at 33.33rpm	33.32rpm (–0.05%)
Time to audible stabilisation	7-8sec
Peak Wow/Flutter	0.22% / 0.05%
Rumble (silent groove, DIN B wtd)	–73.5dB
Rumble (through bearing, DIN B wtd)	–71.5dB
Hum & Noise (unwtd, rel. to 5cm/sec)	–62.5dB
Power Consumption	6-12W (1W standby)
Dimensions (WHD, with lid) / **Weight**	533x245x413mm / 31.5kg

NETWORK-ATTACHED DAC

Network-attached DAC/streamer
Made by: Matrix Electronic Technology Co. Ltd, China
Supplied by: Signature Audio Systems, UK
Telephone: 07738 007776
Web: www.matrix-digi.com; www.signaturesystems.co.uk
Price: £4500

AUDIO FILE

Matrix Audio Element X2 Pure

Pure in name and hi-fi heart, Matrix Audio's 10th anniversary Element X2 model loses its headphone amp but gains a pair of new, cutting-edge ESS Sabre DACs

Review: **Mark Craven** Lab: **Paul Miller**

While the list of 'legacy products' on Matrix Audio's website begins with the DA-100 Plus DAC, which debuted in 2006, the Chinese brand insists it only really began life in 2013 when it was registered as Matrix Electronic Technology Co. 'Before that, Matrix Audio existed in the form of a studio', says marketing manager Yang Tao. This explains why the literature for the new Element X2 Pure network DAC (and the sticker that graces the top of the unit) proclaims it a celebratory model, launched to mark the company's 10th anniversary.

Okay, ten years might not seem as impressive as some of the milestones celebrated by other audio brands recently, including NAD [50 years; *HFN* Apr '23], SME [60 years; *HFN* Jul '22] and Thorens (140 years!), but it helps reinforce the idea that 'Chinese hi-fi' is not new. Furthermore, the Element X2 Pure appears worthy of its elevated status, and acts as an effective calling card for a brand developing at pace.

PURE REASONING

Priced £4500, this is the flagship DAC in Matrix Audio's lineup, above both the £3250 X-Sabre 3 [*HFN* Apr '22] and £4400 Element X2 [*HFN* Oct '22]. The name confirms it's an upgrade of the latter model – itself a development of the original Element X [*HFN* Jan '21] – but the word 'Pure' is doing a lot of heavy lifting. There are enough changes here to justify Matrix Audio simply calling it the Element X3.

In short, what was once a DAC/preamp/headphone amp has now become a DAC/preamp – gone are the 6.35mm and 3.5mm front-panel headphone sockets of the Element X2. This makes the unit a little less of a desktop audio slam-dunk than its sibling, but otherwise the form factor encourages such use. Like the predecessor model, the Element X2 Pure sports a smartly finished aluminium chassis, measuring a slim 58mm high and 340mm wide, only now with new CBVB (Ceramic Ball Vibration Buffer) feet that are said to improve stability and vibration damping.

The removal of the headphone amp is all part of the unit's 'Pure' philosophy, as it means the line output stage enjoys exclusive use of the power supply. This also reduces the possibility of extraneous noise hampering performance, but I'd hesitate to suggest that the more multifunctional Element X2 model is an 'impure' version...

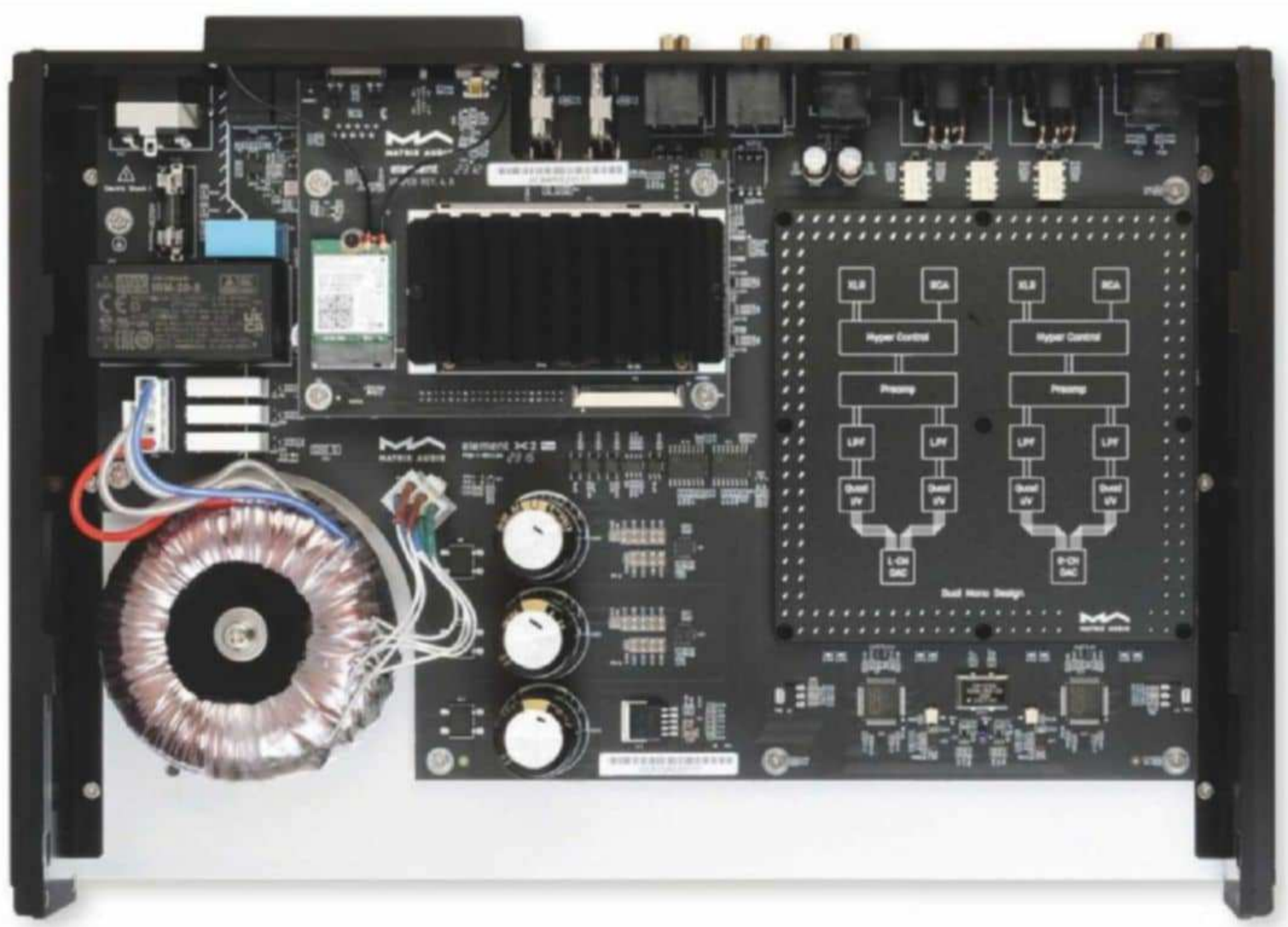
> 'The bassline purred beneath the cash register effects'

Also in pursuit of sonic excellence, the toroidal power transformer has been upgraded in the Element X2 Pure to a new O-core type, Matrix Audio suggesting this delivers a more uniform electromagnetic field – reducing losses – just as the regulation is equipped with LDO (low drop-out) devices throughout, rather than a mix of LDO and DC/DC converters. Furthermore, the Element X2 Pure's audio path is entirely DC coupled and now includes machined aluminium shielding.

FLYING THE FLAG

However, the most significant upgrade arguably concerns the DAC stage, where the Element X2 Pure features pairs of ESS's latest flagship ES9039PRO DACs, rather than the ES9038PRO of the X2 model. With one ESS chip used for each channel, the symmetrical layout of the Element X2 Pure is also essentially dual-mono [see inside picture, below].

Outside of these not inconsiderable upgrades, there's much that will be familiar to owners of the Element X2. Back panel connections include fixed or variable balanced XLR and unbalanced RCA line outs, plus USB-B, S/PDIF, HDMI and I^2S digital inputs for handling files up to 768kHz PCM and DSD1024, depending on the input. A USB-C port provides for playback from local storage, next to 12V trigger in/out and Ethernet for a network



RIGHT: A linear PSU [bottom left] feeds multiple regulated supplies for the 2.4/5.0GHz Wireless Ethernet and quad-core ARM CPU board [top] and fully balanced analogue output stage [right] featuring a pair of 8-channel ESS9039PRO DACs

hook-up should you rather not use the unit's onboard Wi-Fi. Here it's perhaps worth noting that the 'Pure' ethos hasn't extended to a low-noise 'Fibre Ethernet' port, as seen on recent network products including HiFi Rose's RS130 [*HFN* Oct '23].

Control of the DAC is achieved in a variety of ways. The Element X2 Pure is supplied with an (unchanged) remote for playback commands, input switching, volume and filter selection [see PM's boxout, below], while the MA Remote app adds deeper settings, including asynchronous/synchronous upsampling and DPLL configuration [see PM's Lab Report, p55]. Roon Ready status provides another avenue, as does the 3.5in colour display.

Introduced as a design tweak on the X2 model, when playing music this display will show album art, file type, volume, *etc*, but a swipe of a finger takes you into menus covering network setup, firmware, inputs, filters and more. It even offers touch-sensitive transport controls, next to the DAC's physical volume rotary.

One thing for Matrix Audio to maybe address… the front panel display can be set to a high brightness that makes it even easier to read from across a room, but this also ramps up the brightness of the standby/power LED to a distracting level!

EMOTIONAL RESCUE

Minor niggles aside, the Element X2 Pure is a treat to use. It's intuitive and responsive, and the slick operation is matched by an equally slick sound. This DAC delivers fine detail and insight, but it can be energetic and lively too, with an excellent feel for the low octaves and an effortless vibe to its music-making. Listening to it doesn't become an exercise in sterility, or have you wondering about the hardware in your music chain. It will simply have you tapping your feet along to rock and swept up in the emotion of orchestral scores. The combination of Perlisten's S5t floorstanders [p62] and Primare A35.2 amplification [*HFN* Dec '19] was no impediment, of course!

ABOVE: The Element X2 Pure's machined-from-solid alloy case includes a 3.5in touch sensitive display and rotary encoder. It may be controlled via the touchscreen, remote [p55] or MA app

Playing 'Breathe', from The Prodigy's *The Fat Of The Land* [XL Recordings; 44.1kHz/16-bit], it became easy to appreciate the skill of producer/band-leader Liam Howlett. This is a chart-friendly slab of breakbeat dance music, with plenty of snarled 'singing' from frontman Keith, but the composition was revealed as impeccably detailed, from the strummed guitar riff that opens it through to the wide stereo imaging and pin-point percussive details. And the Element X2 Pure unearthed all this while ensuring the drums slammed and the bass rolled appropriately.

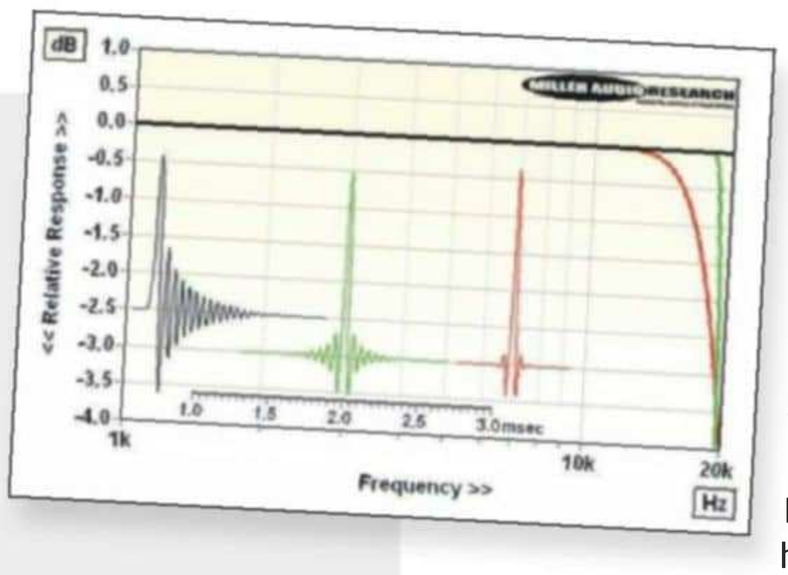
Billy Joel's 'Ain't No Crime' [*Piano Man*, Mobile Fidelity Sound Lab; 88.2kHz/24-bit] sounded just as infectious, rollicking along with a great sense of fluidity. Organ and bass guitar provided deep, rich weight as a counterpoint to Joel's vocal and upper-register piano licks. There are backing vocal 'woos' and bluesy guitar moments, and these were all served up as one glorious, good time whole.

Using the MA Remote app or handset to switch between the DAC's PCM filters is easiest for A/B comparisons, although I couldn't come to any definite preference when cycling through Apodising, Linear Phase Slow Roll-Off, *etc*. I expect many will be happy to set and forget, focusing instead on this unit's impressive general performance.

DRIVING LESSONS

Used with the default Minimum Phase filter, it delivered the opening one-two punch of Dire Straits' *Making Movies* set [Vertigo; 44.1kHz/16-bit] with an enjoyable balance of power and poise. 'Tunnel Of Love' opens with some Rogers and

RINGING THE CHANGES



The Element X2 Pure is one of the first hi-fi solutions to employ ESS's latest 'Sabre Pro' DAC, the ES9039PRO which, like its predecessors, offers designers seven alternative digital filter modes. The options are 'tweaked' in this DAC with the Brickwall filter removed and the 'Hybrid' type replaced by 'Low Dispersion' which, in practice, is a very similar hybridised minimum phase filter. With this, plus its default Minimum Phase filter, and Fast and Slow Roll-off options, the X2 Pure has four minimum phase types offering little or no (acausal) pre-ringing combined with reduced latency. The three linear phase filters (Apodising, Fast and Slow Roll-off) have pre- and post-ringing but reduced phase distortion. Once again, however, what you select from Matrix Audio's menu is not necessarily the filter you think…

Click on 'Low Dispersion' and you get the 'Apodising' filter – if you want the Low Dispersion filter then select 'Minimum Fast' instead. And if you want 'Minimum Fast', select 'Minimum Slow' (which is activated by clicking on 'Apodising'). The default 'Minimum' and 'Fast/Slow Linear' filters select the correct coefficients in the ES9039PRO! The 'real' Fast Minimum [black, inset Graph], Fast Linear and Apodising [green] all have sharp roll-offs (the Low Dispersion filter, red, has an early but steep roll-off) with good stopband rejection [see Lab Report, p55]. By contrast, the Minimum, Slow Minimum and Slow Linear [red] filters afford gentler treble roll-offs and poorer stopband rejection. These filters come into their own with higher sample rate files. PM

PMC®

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BRING THE STUDIO HOME

With prodigy, we're building on our belief that ultra-high-resolution loudspeakers, properly designed, can be used throughout the entire audio chain. That's why our designs are in composers' music-rooms, recording studios, and all the way through to the home – delivering the original performance directly to the listener.

Designed and built in-house here in Britain, the compact prodigy1 standmount and floorstanding prodigy5 both deliver staggering clarity and depth of bass seemingly beyond their size, thanks to our ATL technology – just part of the innovative PMC thinking packed into these speakers.

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ABOVE: Digital ins include wired/wireless Ethernet, HDMI ARC, and I²S on HDMI (up to 768kHz PCM, DSD256 as DoP and DSD1024 natively), USB-B (also 768kHz PCM and DSD256 as DoP), 2x optical/coax S/PDIF and external files via USB-C. Analogue outs (fixed or variable) are offered on RCAs and balanced XLRs

Hammerstein carousel music that crackles enough to make you think you've blown a tweeter, before the sound 'cleans up' and the band gets to work. There's the driving urgency to the rhythm section and the authentic 'twang' of a Fender Strat to enjoy, before we reach the song's breakdown, where the Element X2 Pure exposed the nuances in Knopfler's resigned, lovelorn vocal, lending the song the emotional heft it demands. Follow-up track 'Romeo And Juliet' winds the pace down, the use of a resonator guitar lightening the sound, but the bass and drums still had a wonderful warmth.

ON THE MONEY

The precision of this DAC's delivery and focus of its soundstaging made clear the differences in production between ZZ Top's *Tres Hombres* album from 1973 [Warner Bros; 96kHz/24-bit], and their best-selling 1981 set *Eliminator* [Warner Bros; 44.1kHz/16-bit]. The former shines a light on the guitars with a forward, open sound, while the latter – which saw the Texan trio add synthesisers and drum machines – puts Billy Gibbons' six-string further back, aiming for a thicker, more atmospheric feel. Different approaches, but both thrilling.

The relentless bass guitar on *Eliminator*'s 'Gimme All Your Lovin'' was clearly defined, but it wasn't the best example of the Element X2 Pure's full-range prowess. More indicative was the title track of Kendrick Scott's *We Are The Drum* [Blue Note; 96kHz/24-bit], where the jazz drummer's playing was accompanied by strings, brass and bass clarinet of remarkable weight and body, or Pink Floyd's 'Money' [*The Dark Side Of The Moon*; Pink Floyd Records; DSD64], where each note of the bassline purred beneath the cash register effects.

As a networked DAC/preamp, there are various ways to use the Element X2 Pure, but for much of my listening I ran it straight into the aforementioned Primare A35.2 power amp, streaming via Roon. This made for a fuss-free, clutter-free system and long, jukebox-style listening sessions where the DAC's defined, open sound appeared suited to every flavour of music.

The genre-hopping exuberance of Amadou & Mariam's *Dimanche À Bamako* album [Because Music; 44.1kHz/16-bit], where African, Middle Eastern and Western instruments bubble away in a blues/reggae-tinged melting pot, spotlighted the Element X2 Pure's ability to capture timbral differences and microdynamics. The grooving gait and vocal presence of 'Senegal Fast Food' was so enjoyable I tried to sing along – despite not understanding the French lyrics...

LEFT: The Element X2 Pure includes a physical handset in addition to the MA Remote app (for iPhone, iPad and Android), offering input selection, volume, mute and access to the seven LPCM digital filters

HI-FI NEWS VERDICT

Matrix Audio's little birthday present makes a big impression. Okay, this 'Pure' iteration of the Element X2 no longer caters to headphone users, but otherwise it's a digital front-end of multitudinous talents. Roon Ready, app controllable and with a superior touchscreen display, it's a genuine pleasure to use, and the upgraded DAC and analogue output stages yield a sound that's revealing and clean yet vibrant.

Sound Quality: 88%

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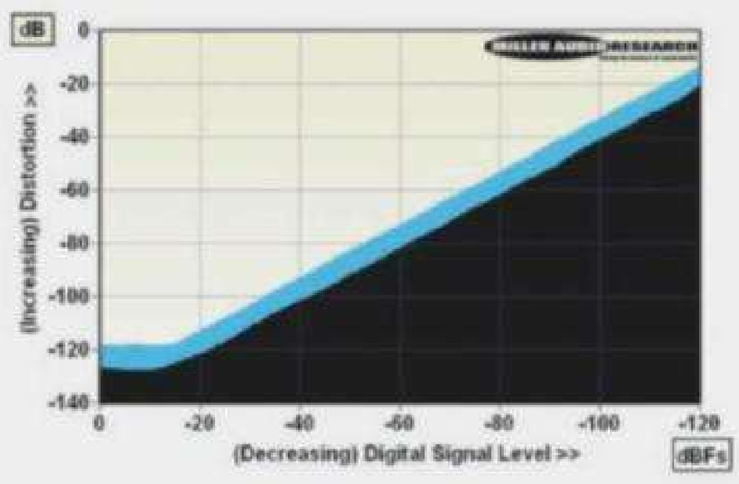
LAB REPORT

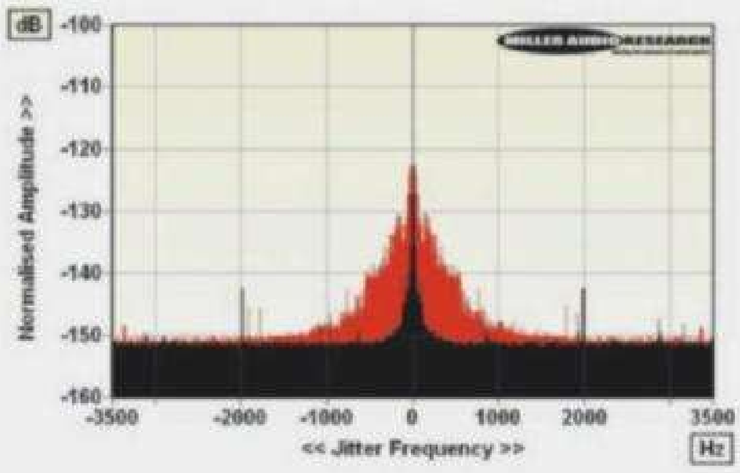
MATRIX AUDIO ELEMENT X2 PURE

Matrix Audio's website talks about the early adoption of ESS's ES9039PRO DAC in the Element X2 Pure – a pair of these 8-channel DACs, in fact – alongside improvements to the PSU, passive components and intermediate DSP. Otherwise the X2 Pure is clearly built onto the Element X2 chassis [*HFN* Oct '22], minus the latter's headphone amp but retaining the slight 'mix-up' in digital filter selection [see boxout, p53]. The X2 Pure's 4.36V maximum balanced output, superb low-level linearity (good to ±0.1dB over a full 110dB dynamic range) and 116.2dB A-wtd S/N ratio are essentially unchanged over the X2 but the newcomer's lower 10ohm source impedance (versus 96ohm) indicates the preamp output has been improved beyond that suggested in MA's promotional literature, rendering the X2 Pure less sensitive to choice or length of interconnect.

Similarly, the X2 Pure achieves even lower distortion at 0.00001-0.00015% (0dBFs, 20Hz-20kHz) while holding to a mere 0.00009-0.00025% over the top 30dB of its dynamic range [see Graph 1, below]. Tested in asynchronous mode, jitter depends on both source quality and the selected DPLL (Digital Phase Lock Loop) bandwidth, with the low (narrow) DPLL yielding the lowest ~6psec [see Graph 2]. Finally, I discuss the response and time domain behaviours of the digital filters on p53 while the stopband rejection of the 'real' Minimum, Apodising, Linear Fast and Slow, Minimum Fast and Slow, and Low Dispersion filter types are 75dB, 109dB, 81dB, 8dB, 74dB, 8dB and 8dB respectively. The 'Slow' and 'Low Dispersion' filter types are best deployed with higher (96kHz and above) sample rate files where any aliasing images are pushed well outside the audioband. **PM**



ABOVE: Distortion versus 48kHz/24-bit digital signal level over a 120dB dynamic range (black, 1kHz; blue, 20kHz). Note extended 0dB to –140dB Y scale



ABOVE: High resolution 48kHz/24-bit jitter spectra with normal [red] and low [black] DPLL bandwidths

HI-FI NEWS SPECIFICATIONS

Maximum output level / Impedance	4.36Vrms / 10ohm (XLR out)
A-wtd S/N ratio (S/PDIF / Network)	116.2dB / 116.2dB
Distortion (1kHz, 0dBFs/–30dBFs)	0.00001% / 0.00009%
Distortion & Noise (20kHz, 0dBFs/–30dBFs)	0.00015% / 0.00025%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0 to –0.0dB/–0.3dB/–0.2dB
Digital jitter (48kHz / 96kHz)	6psec / 10psec
Resolution (1kHz @ –100dBFs/–110dBFs)	±0.1dB / ±0.1dB
Power consumption	17W (4W standby)
Dimensions (WHD) / **Weight**	340x58x259mm / 4.2kg

Integrated tube amplifier. Rated at 20W/8ohm
Made by: Trafomatic Ltd, Serbia
Supplied by: Absolute Sounds Ltd
Telephone: 0208 971 3909
Web: www.trafomaticaudio.com; www.absolutesounds.com
Price: £19,998

Trafomatic Rhapsody

The latest addition to Absolute Sounds' boutique 'Ten' range – the Trafomatic Rhapsody from Serbia – is a single-ended, 300B-based triode tube amp rated at a mighty 20W

Review: **Ken Kessler** Lab: **Paul Miller**

As far-fetched as this may seem, given that most post-Millennials have yet to embrace hi-fi, we are living in another audio 'Golden Age'. This isn't the place to rattle off a list of gems that have crossed my path just since the Covid moratorium ended, but the Western Electric WE-91B [*HFN* Feb '23], a trio of DeVore speakers [*HFN* Apr '21, Mar & Aug '23], and family of DS Audio optical cartridges [*HFN* Oct '21 & Oct '23] are among the many that beg my repeating of the homily, 'You've never had it so good'. Trafomatic's Rhapsody (M2-15 Anniversary stereo PSE 300B tube) integrated amplifier joins them, and emphatically so.

Even the £19,998 price surprises: I really thought it would be more. Its physical presence, a brace of 300Bs per channel, a thought-provoking weight of 32kgs, sexy meters, myriad oddly labelled knobs and switches – this is the stuff to make even a jaded audiophile's heart skip a beat. And with it coming from Serbia, I had no idea what it would sound like, despite having seen Trafomatic at numerous shows [see p35] over the past decade-and-a-half.

VARIETY SHOW

The Rhapsody is part of a massive range which includes six power amps, three preamps and two phono stages, eight integrated models of varying topologies including single-ended and push-pull designs, three headphone amps, and a handful of accessories. The variety shows that Trafomatic isn't locked into a single amplifier type, the Rhapsody being a line-level-only 'Parallel Single-Ended' design. Aside from the need to add a phono section if you play vinyl, it's comprehensive by most standards, even including a remote control [see p61] for playback levels.

Set-up was a no-brainer, aside from one set of toggle switches, which I will get to in due course. Starting at the back [see p61], you'll see why, as everything is instinctive. From left to right, there is an earthing post, three pairs of phono sockets (charmingly labelled RCA 1, 2 and 3) and a pair of XLR inputs for a balanced source. The rather fine multi-way binding posts provide for both 4 and 8ohm loads [see PM's boxout, p57], while to the far right are an IEC socket and a voltage selector. Both sides of the beautifully-finished, metallic vermillion-coloured chassis are louvred, the left side also containing the on/off rocker.

> 'This is the stuff that makes an audiophile's heart skip a beat'

ADMIRING THE VU

Seen from the front, the fascia sports a massive, scalloped rotary knob for volume, which is motorised for the remote. Next are two large, illuminated VU meters. Mirroring the volume control is another black rotary to choose from the three RCA inputs or the one balanced XLR input.

It's the top view that will tickle those who want more than the minimum. Across the back of the Rhapsody are three massive transformers, which – unlike too many – are housed in superbly anodised cases. Next comes the row of four Electro-Harmonix 300B power triodes, one parallel pair per channel, in front of which are two 6SN7s. Inbetween the 6SN7s is a handy knob to adjust the VU meters' sensitivity, which will be useful if you change loudspeakers from say, super-efficient to substantially hungrier and the VU meter readings are either too low, or

RIGHT: Inside the Rhapsody revealing the point-to-point wiring, partly with vdH cable, custom output transformers [bottom, left/right], Mundorf MLytic PSU capacitors [bottom] and separate L/R PSU regulation [far left/right]

LEFT: Rotaries for (motorised) volume [left] and input selection [right] flank two illuminated 'VU' meters. Up top, selected 6SN7 double-triodes drive parallel pairs of 300B power triodes configured in SE/Class A

are continually smacking the end stops at the far right 'red end' of the scales.

What needs further explanation are the four toggles – one per 300B – marked 'Mesh' and 'Solid'. This refers to the type of 300B you are using. As the Rhapsody features auto-biasing, that's not an issue should you wish to change valves. Mesh-vs-Solid is another matter entirely, referring to the type of anode. Mesh anodes handle less power than solid, so a mesh anode valve will be damaged if the switch is set to solid, as for the Electro-Harmonix 300Bs.

READY TO ROLL

There's another reason why this valve-swapping facility will endear the Trafomatic to those of a tweaky nature. As you will discover, the Rhapsody does not pray to the 300B SET hymn sheet in every parameter. Yes, it's sweet and warm, but equally it tends toward the more precise and analytical. Look elsewhere for the fat, soft sound used to tame certain horn speakers. Having heard the differences between assorted makes of 300Bs, and as the Rhapsody has no awkward cage to remove, enthusiasts might like to try vintage new-old-stock valves, or splash out on some of the more premium examples available today.

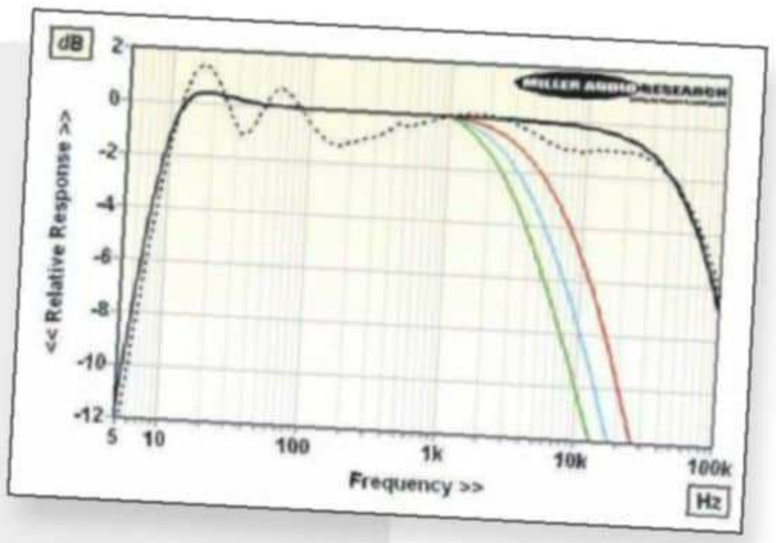
One more thing. Aside from the usual instructions about warm-up, of which a minimum of 15 minutes is recommended, and the owner's manual warning against haste when changing valves, there is another nice touch with safety in mind. Supplied with the unit is a Perspex panel that slots into the front, the two apertures positioned just above each knob on the fascia. This will prevent accidentally bumping into the hot-running tubes. As for space considerations, the footprint is 470x370mm (wd) and it's 260mm tall but the latter is incidental: you will not want anything directly above it.

300B triode amps will never be uber-powerful – the Rhapsody is rated at 2x20W, though PM suggested a much lower real-world figure for mating to speakers [see Lab Report, p61]. Sensitive speakers like the DeVore O/93s [*HFN* Mar '23] immediately spring to mind, and these were used for most of my listening, but I did enjoy near-miraculous pairings with my legacy Quad ESL57s, and the far newer PMC prodigy1 [*HFN* Nov '23] which seemed happy enough in my 12x18ft room.

RHAPSODY IN RED

For a forthcoming round-up of audiophile LPs, I have secured a copy of *Hit The Bongo! The Latin Soul Of Tico Records* [Craft Recordings CR00660], a 2LP set

TAP DANCING



In common with most tube amps – triode or pentode – the Rhapsody offers two sets of transformer taps to step-down the high voltage/high impedance output of its 300B power tubes to better match the lower impedance and higher current demand of the attached loudspeaker. Specifically, the Rhapsody has 4mm outputs [see p61] conceived to 'match' nominal 8ohm and 4ohm loads, even though, in practice, very few speakers provide this linear impedance. Instead the amplifier 'sees' a load that swings up and down with frequency as the various reactive components of crossover and drivers come into play, causing the system response to rise with increasing speaker impedance and fall with decreasing speaker impedance.

The severity of these response variations is determined by the magnitude of the swings in speaker impedance vs. the source impedance of the amplifier (~2ohm from 20Hz-20kHz for the Rhapsody). As the Rhapsody's treble response drops away quite markedly via its 4ohm tap into 4, 2 and 1ohm loads [red, blue and green traces, inset Graph] it is crucial to match it with speakers offering a 'bright' response, high sensitivity and a high, or increasing, HF load impedance.

For Ken's listening we chose the DeVore O/93s [*HFN* Mar '23] – these offer a useful 90dB sensitivity coupled with a load impedance that's broadly >7ohm (20Hz-20kHz), has acceptable swings in phase angle of +54°/–60° through the bass and a thoroughly 'driveable' worse-case 3.1ohm/99Hz EPDR. The black trace [inset Graph] shows the Rhapsody's extended HF response via its 8ohm tap into a non-reactive 8ohm load while the dashed trace shows the response via the same 8ohm tap into the DeVore O/93. These relatively modest ±1.8dB response variations, in the bass, will not be disruptive but the Rhapsody driving a tougher speaker via its 4ohm tap might look, and sound, very different indeed. PM

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D E S I G N E D & H A N D M A D E I N S C O T L A N D

RIGHT: The Rhapsody's 'Solid/Mesh' toggles can just be seen on the top plate from this angle. These set the anode dissipation for the 300B triodes – 'Solid' mode is for 300Bs that run at higher power

with both mono and stereo tracks. I realise many of you might never bother with mono, but it proves useful when assessing any component, especially if you don't have a mono cartridge or a mono setting on your amp or preamp. You want a rock-solid central image regardless, which the Rhapsody provided. More surprising, however, was the way it handled these incredible, Latin soul and jazz mono tracks, because one soon stopped thinking about the single-channel playback.

But that wasn't the main reason this 'various artists' compilation proved to be so revealing. The percussion which dominates much of the music from Tito Puente, Ray Barretto and others of that calibre has as much character as Kodo drumming, and it impressed upon me more than the clean extreme treble how the Rhapsody avoids clichés about SET amplifiers – even if they may by now be rather outmoded. The sound here was deep, massive and of the sort which seems to roll across the floor like the mists in a Hammer flick.

> 'I wallowed in the sound of a full-blown, room-filling orchestra'

YOUNG AT HEART

As this initial impression was so favourable, and I didn't want to think I was that easily charmed, I dug out one of the worst LPs I have ever heard. What's so heart-breaking about the soundtrack to *Dead Man* [Vapor Records 9362-46171-1] is that the horrible screech was made by Neil Young, whom I adore. What I wanted to test here was something I've done for most of my time as a reviewer: is the sound enticing enough to keep me listening, even if the music is so bad that I've lost the will to live?

Thanks to the Rhapsody's seamless, seductive presentation, I duly sat through all four sides. Here, perhaps, I was transposing onto the designer [see interview sidebar with Saša Čokić, right] a possible leaning toward thrash, grunge or some other dissonant genre, as this was recorded in 1996 when Young was hanging around with Pearl Jam. And yet this droning racket proved involving and hard to resist, like a train wreck.

Turning to something less likely to require paracetamol, I have always adored the recently departed Loretta Lynn, and consider myself blessed – no pun intended – to own a copy of *Hymns* on pristine open-reel tape [Decca ST74-4695]. Given that there is a level of hell awaiting hi-fi reviewers, I approached it in a secular mood, as it is, content aside, pure country music. Its star qualities are her crystalline vocals, almost a template for distaff C&W warbling, and the metallic attack of a banjo.

CONSISTENTLY CONVINCING

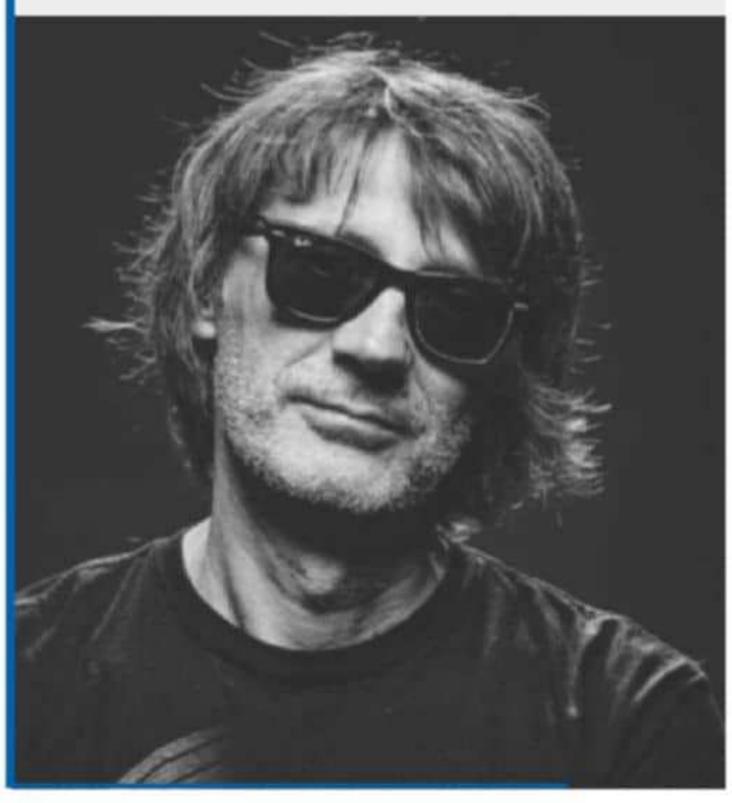
While these were anticipated, and the Rhapsody proved as adroit with female vocals as with Latin percussion, I was unprepared for the speed of the transients, the crispness of the plucking or the sound of the banjo's vellum head. It was so truly, convincingly authentic that I had to hear it through speakers as sonically far apart as the Quad '57 and PMC prodigy1, and it remained consistently 'real' from speaker to speaker. I would add here that I played the tapes through the amplifier's XLR input

SAŠA COKIC

Trafomatic's founder, Saša Čokić, looks like he was in a Balkan heavy metal band in the 1980s, and not just because of the Hard Rock Cafe t-shirt and the shades. There's a cool genotype in Eastern Europe – in this case, Serbia – which suggests a hardy nature, as if they had to smuggle LPs from the West to hear rock music. All this reinforces my belief that hi-fi designers' personalities are often reflected in their equipment. So the Rhapsody rocks, unlike your typical 300B-powered SET.

Čokić explained that while Trafomatic was established in 1997, the manufacture of Trafomatic *electronics* did not start until 2007, under the name Trafomatic Audio. He says, 'I didn't work for other [audio] companies, but Trafomatic made output and power transformers for other hi-fi brands. Although I started making amplifiers officially only in 2007, the first amp I ever made, aged 13 years, was a guitar tube amp from parts I found in old radio sets'.

Serbia has a strong hi-fi scene, Čokić citing, 'successful brands like Karan Acoustics, Auris Audio, RAAL Requisite, NAT Audio, Acoustic Invader, Velikinac Audio Lab, Way Cables and probably more'. How much of the iconoclastic nature of Trafomatic and its homeland brands is due to Serbia's previous detachment from hi-fi's mainstream is hard to say, but Čokić says, 'I don't look for inspiration in other brands. Inspiration comes to me from within – I can't explain it'. What Trafomatic practices, though, is a dedication to music. Like I said, the brand/the man even looks like a rocker!



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AURALIC PRESS AWARDS

ABOVE: Four line inputs (three on RCAs and one balanced pair on XLRs) are joined by pairs of 4mm speaker terminals connected to 8 and 4ohm output transformer taps

– easily worth the effort for added impact in the low registers and quieter background silences.

Loretta is joined by a chorus on 'How Great Thou Art' and a few other tracks. The multiple voices enjoyed some of the most convincing grouping one could hope to hear, such that I wished the tape came with a road map or floor plan. Whatever their actual location, they were arrayed across the soundstage without that Viewmaster 3D flatness which compromises stage depth.

MAGICAL AMP

Having sampled the sacred via Nashville, I craved more spiritual but orchestral music. With Christmas approaching, I turned to two open-reel tapes rife with choruses: the Columbia Musical Treasuries Orchestra's *The Magic Of Christmas* [Columbia D2T 5250] and Arthur Fiedler and the Boston Pops Orchestra's *Pops Christmas Party* [RCA Victor FTC-2022]. Even if you don't celebrate the pleasures of Noel, I gotta tell ya: these tapes are of hi-fi show demo quality.

Trafomatic's Rhapsody ensured that I wallowed in the room-filling, full-blown orchestral readings of 'White Christmas', 'Sleigh Ride' and 'Santa Claus Is Coming To Town', some wholly (or holy) instrumental, others with multiple voices to the fore. What was not compromised, despite the Rhapsody amplifier eschewing lushness for the sake of it, was that silky sheen which endears SET designs to the faithful. The best way to describe it is an inherent antidote to listener fatigue.

If there is any limit to this amplifier's sheer command, it might prove to be the wattage, but that only affects your choice of loudspeaker. When paired with high-sensitivity models, the Trafomatic Rhapsody earns the most glowing testimony I can bestow on a product by simply stating one fact: my first listening session ran for seven uninterrupted hours. Yes, *seven*. The only downside? Looking at the smart meter in my listening room.

LEFT: The red lacquer applied to Trafomatic's simple, alloy remote control matches the unit's chassis. Up/down volume buttons govern the motorised control on the amp

HI-FI NEWS VERDICT

At the risk of seeming a soft touch, I found my time with the Trafomatic Rhapsody almost too rewarding. While its performance belies its power rating, that might still preclude hungrier speakers. Its operation was faultless, the facilities and ergonomics textbook perfect. Thus I must acknowledge Saša Čokić's mission statement: this amplifier is all about – and only about – the music. It is truly a *tour de force*.

Sound Quality: 88%

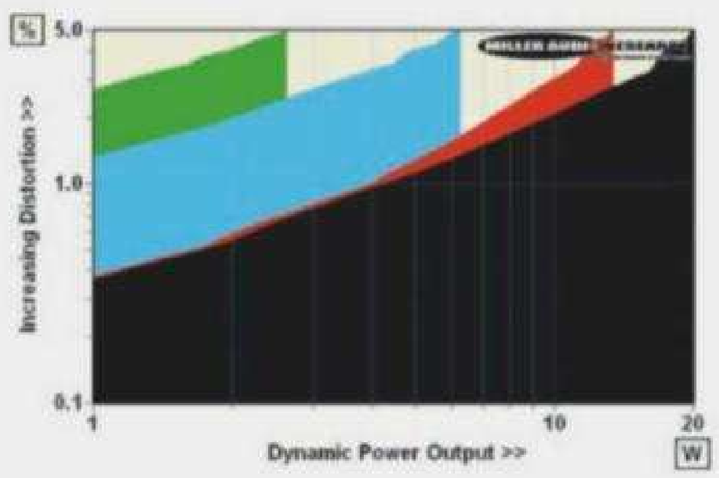
0 - - - - - - - - 100

LAB REPORT

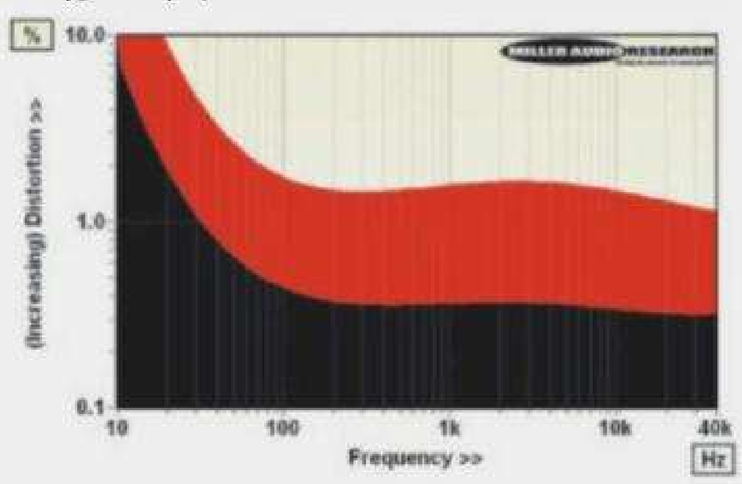
TRAFOMATIC RHAPSODY

With the 'Anode Dissipation' mode set to 'Solid' the Rhapsody succeeds in achieving its 2x20W rated output into 8ohm, albeit at 7% THD. The relationship of distortion versus power output is fairly linear in this instance, the amplifier offering 8.3W, 12.0W and 16.8W into 8ohm at 2%, 3% and 5% THD, respectively, and 7.5W, 11.0W and 16.0W into 4ohm (via the 4ohm tap) also at 2%, 3% and 5% THD, respectively. There's a little extra output available under dynamic conditions, to the tune of 20W/8ohm and 13.5W, 6.5W and 8.5W into 4, 2 and 1ohm, respectively, via the 4ohm tap [all up to 5% distortion, see Graph 1 below]. Sensitive loudspeakers, like the DeVore models from Absolute Sounds' Ten range, are ideal partners although the amplifier's modest 83.5dB A-wtd S/N (re. 0dBW) and –63dBV residual noise suggests some mild background hiss may still be audible.

The Rhapsody's 'colour' extends well beyond its gorgeous metallic red chassis, particularly at bass frequencies where THD is ~2% at 20Hz/1W before falling away to a steady ~0.35% through mid and high frequencies. At just 5W output into 8ohm, distortion hits ~9%/20Hz – presumably through transformer core saturation – and falls to a minimum of 1.3-1.5% through mid and treble [see Graph 2, below]. This is significantly higher than we typically measure from today's loudspeakers at 90dB SPL/1m, for example. Additional colour is introduced from the Rhapsody's interaction with the attached loudspeaker's impedance trend [see boxout, p57] but is already reflected in a response which shifts from a 'flat' +0.4dB to –0.6dB into 8ohm down to +1.0dB to –20.3dB into 1ohm (all 20Hz-20kHz). Reviews of the Rhapsody should be judged as very specific amplifier/speaker combos. **PM**



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 2.9A



ABOVE: Distortion versus frequency versus power output (1W/8ohm, black and 5W/8ohm, red)

HI-FI NEWS SPECIFICATIONS

Power output (<3% THD, 8/4ohm)	12W (8ohm tap) / 11W (4ohm)
Dynamic power (<5% THD, 8/4/2/1ohm)	20W / 13.5W / 6.5W / 8.5W
Output imp. (20Hz–20kHz/100kHz)	1.9-2.3ohm / 2.6ohm
Freq. resp. (20Hz–20kHz/100kHz)	+0.4dB to –0.6dB / –6.8dB
Input sensitivity (for 0dBW/20W)	125mV / 660mV
A-wtd S/N ratio (re. 0dBW/20W)	83.5dB / 96.5dB
Distortion (20Hz-20kHz, 1W/8ohm)	1.8-0.35%
Power consumption (Idle/Rated o/p)	240W / 243W
Dimensions (WHD) / **Weight**	470x260x370mm / 32kg

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Perlisten Audio S5t

Derived from Perlisten's S7t flagship, and featuring the same DPC array, the S5t is simply more 'user-friendly'
Review: **Mark Craven** & **Paul Miller** Lab: **Paul Miller**

Few loudspeaker brands come racing from the gate, but Perlisten, from Wisconsin, US, has gone from unheard of to a serious challenger in very short order. First up, in 2022, was the EISA Award-winning S7t floorstander [*HFN* Apr '22], which introduced the company as a high-end marque, and this was quickly followed by its second-tier R series [*HFN* Aug '22]. Now we get the S5t, essentially a slimmed down version of the S7t, with all the appeal that this entails.

As Perlisten will have it, requests for a version of the S7t more suited to smaller rooms had become 'too numerous to ignore', so the S5t was born. Selling for £13,600 in its standard black and white gloss finishes, or £15,800 for the Ebony option shown here, it really does look like a baby brother to the S7t. In fact, the only visual difference between them is that two drivers have gone missing…

'It unwrapped the busy mix, sounding fresh and new'

POWER OF TWO

Which ones? Not any from the DPC (Directivity Pattern Control) array, as this is a Perlisten speciality, a version of which can be found on all its speakers. Rather, it's the S7t's woofers, which exclusively covered the bass range up to 500Hz, that have been culled, leaving the S5t with a pair of bass/mid units crossing over at 1.2kHz.

Going from four 180mm drivers to two has enabled Perlisten to make the S5t around 20cm shorter, which on paper doesn't seem like much but visually makes a significant difference. The width of 24cm is the same, so it's not particularly portly, and depth remains a more sizeable 40cm. Cabinet weight, for what it's worth, has been trimmed to 43.2kg from 55.7kg.

The effect of removing the two dedicated bass drivers impacts the specification [see PM's Lab Report, p65], although Perlisten still rates the low-frequency extension at a 'typical in-room' 20Hz (with the speaker operating in bass reflex mode), or 23Hz (sealed box). Meanwhile, side-facing vents toward the bottom of the cabinet relate to the S5t's internal Helmholtz tubes, which can be left fully open or sealed.

CLOSED SAUCE

Interestingly, another specification change concerns the high-frequency response, which here is 32kHz as opposed to the S7t's 37kHz, suggesting that although the S5t features the 'same exquisite DPC array', the speaker has been further 'tuned' to compensate for its reduced driver complement.

Like KEF's UniQ or B&W's Tweeter on Top, DPC is Perlisten's secret sauce. The result of an extensive development process, including Comsol acoustic modelling, it features a central 28mm beryllium dome tweeter flanked by 28mm thin-ply carbon diaphragm (TPCD) midrange drivers above and below. All three units sit within a large, dished fibreglass waveguide, which – along with the crossover network and driver position – aims to ensure the desired horizontal and vertical dispersion of the speaker's upper-mid and treble.

While the S5t is smaller than the S7t, it's lost none of the bigger brother's sense of style. The look perhaps fits the UK/European idea of an 'American' speaker, particularly with the distinctive checkerboard finish to the (also TPCD) bass/mid drivers. But even if this floorstander appears less 'swish' than some high-price rivals, build quality and attention to detail is excellent.

The curved front baffle, finished in black, blends well with the gloss cabinet sides, while the rear-panel speaker binding posts for its split crossover are robust. The circular feet that – in conjunction with a

RIGHT: Perlisten's 'DPC array' comprises a 28mm beryllium tweeter and upper/lower 28mm TPCD (thin-ply carbon diaphragm) domes. The two custom 180mm TPCD bass drivers are configured for either vented or sealed-box alignment

MULTICHANNEL TOO

Aiding the impression that Perlisten arrived as a 'fully formed' outfit, and not simply a boutique brand, is the fact that – from the outset – it's targeted both hi-fi *and* home cinema enthusiasts, albeit above a certain price level. The S5t tested here is just one speaker in a range that also includes centre channel and on-wall surround options, as does the more affordable (but still premium) R series.

More recently, both ranges have been joined by architectural/custom install speakers. System builders therefore have in-wall and in-ceiling options to either match with Perlisten's conventional cabinet designs in a 'hybrid' set-up, or to complete a fully invisible system. Models in the S series run from a compact but still three-way S3i-c in-ceiling unit, with slightly reconfigured DPC [pictured, inset], to the S7i-LR, which is effectively an in-wall iteration of the S7t flagship [*HFN* Apr '22]. Additionally, Perlisten has two ranges of subwoofers, split between the premium D series models (not S series, for some reason) and step-down R series. The top-line option, the 92kg D215s, features two 380mm bass drivers in a push-pull configuration, plus a 3kW-rated DSP-driven amplifier.

Perhaps the only option Perlisten's lineup is now lacking is an in-wall subwoofer to match its architectural models. Maybe that's coming next…

steel plinth – support the cabinet offer easy adjustment of levelling, and individual speaker grilles let you choose which, if any, of the S5t's drivers you want to cover up.

Once again this Perlisten speaker earns THX Dominus certification, meaning it has passed muster for use in home theatre systems at sizes of up to 184 cubic metres. Sensitivity is quoted at a useful 89.5dB, but with a nominal impedance figure of 4ohm you'll want to use it with the sort of amplification its price tag and size implies.

CRISP 'N' DRY

Even in bass reflex mode, the S5t doesn't deliver the sort of bass opulence you might idly imagine from a speaker of its size and specification. It favours neutrality over warmth, the low-end greeting you with a firm handshake rather than an enveloping hug. Sometimes it can even sound a little dry, albeit in complete control, and next to that there's so much else to savour: a wide, high soundstage; excellent detail across the audio band; transient attack; and more. Above all, perhaps, it's supremely revealing.

For example, Rebecca Pidgeon's 'Now Begins' [*Parts Of Speech Pieces Of Sound*; self-released 44.1kHz/16-bit] enjoyed a wonderful bass sound and delicate depiction of its percussion, plus the floaty, expansive soundstage. It was slick, modern and ethereal. But at the other end of the musical spectrum, the raw production of 'Combination' from Aerosmith's 1976 album *Rocks* [Columbia 474965 2] shone through, even while the precision of the S5t unwrapped the deceptively busy mix to make it sound fresh and new. Multiple guitar parts and layered vocals weaved in and out from various parts of the stage before Joe Perry locked into the centre for a fuzz-laden solo.

Equally revealing was 'Take It Easy' by The Eagles [*Eagles*; Rhino Records 192kHz/24-bit]. This sounded sweet and smooth in the midrange and bass, without losing any crispness to its percussion and leading edges. Backing vocals surged from behind singer Glenn Frey, and such was its resolution that my focus drifted during the main guitar solo to the banjo plucking away quietly in the background, not a detail I'm always aware off.

ANGLE GRINDER

Back to the S5t's handling of bass and low-end detail, to which I'll say if it's on the record you'll hear it. Jastin Martin's 'Miss Me Yet' [*House Of Fame*; 44.1kHz/16-bit] is a fine example of R&B/hip-hop in the 2020s, blessed with samples, synthetic beats and deep bass notes, the latter given genuine extension here. Similarly, 'Stalker' from drum 'n' bass producer Aphrodite [V2 Records VVR1006952] filled the room with metallic-edged bass notes that, thanks to the loudspeaker's uniform dispersion, appeared to attack me from all angles.

That said, the S5t is more confident in its portrayal of finer bass elements, doing so with speed and grip. The syncopated drum intro to The Steve Miller Band's 'Take The Money And Run' [*Greatest Hits 1974-78*; Mercury 44.1kHz/16-bit] warranted a few listens to appreciate the absolute control over the kick-drum and snare,

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while the fullness, tightness and speed of the bass transients on Dire Straits' 'Tunnel Of Love' [*Making Movies*; Vertigo 800 050-2] formed a firm foundation for Mark Knopfler's vocals and Fender fireworks.

By being so dynamic, precise and fleet of foot, the S5t brings a feeling of directness to whatever you're listening to. Lalo Schifrin's funky 'Main Title' to Clint Eastwood's *Dirty Harry* OST [Aleph Records] sounded immediate, almost like having a live percussionist at the end of the room. Dolly Parton's recent star-studded cover of 'Let It Be' [Butterfly Records] did the same for the big, rolling piano played by Paul McCartney, while the duo's vocals were as recognisable as ever, down to Dolly's slightly pinched pronunciation.

There will be times the S5t's measured, transparent performance might not give you what you want. As an example, the blues brilliance of Taj Mahal's 'Leavin' Trunk' from the album of the same name [Columbia 480968 2] captivated with its blasts of rough-edged harmonica, but the speaker's unvarnished approach had me hankering for a bit more bloom and scale to the bassline and drums.

LEFT: The S5t's three-way (1.2kHz/4kHz) crossover is split between the bass/mid and DPC array drivers enabling bi-amping/bi-wiring if the gold-plated links (seen here) are removed. Side and rear vents come into play if the S5t is configured in reflex mode

BACK TO BLACK

Other times though? The S5t will blow you away. Joe Bonamassa's 'High Water Everywhere' [*...Live From The Royal Albert Hall*; Provogue PRD 7274-2], with its heavy drumming track spread across a huge stage, was an eye-opening moment. The twang of the steel string acoustic guitar had righteous attack, the singer's vocals were projected high and far, and the speakers disappeared entirely from view.

Of course, this recording is demo-worthy and mixed to sound gargantuan, but Perlisten's floorstander did it justice. And I got the same impression from Black Sabbath's 'Symptom Of The Universe' [*Sabotage*; Warner Records RR2 2822], arguably the first ever 'thrash metal' track. The S5t didn't shave an ounce off the grit and texture of Tony Iommi's serrated guitar riff, while drums and bass crashed around behind. I could have been in the Black Country in 1975.

HI-FI NEWS VERDICT

Perlisten's S5t is more than a fine runners-up prize for those whose listening room (or budget) can't accommodate the larger S7t floorstander, as it goes about its business in mostly the same way. Imaging focus, speed, resolution and instrumental detail are all on the menu, and while its bass output isn't extravagant it still hits hard, with musicality. This is another superb speaker from the fast-expanding US marque.

Sound Quality: 88%

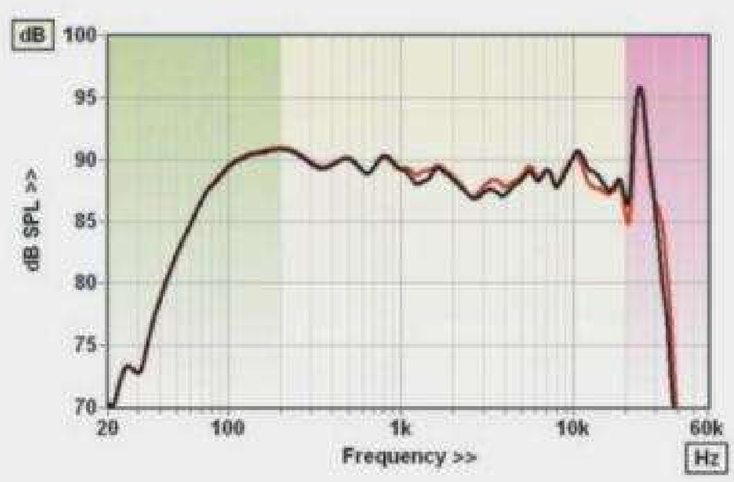
0 - - - - - - - - 100

LAB REPORT

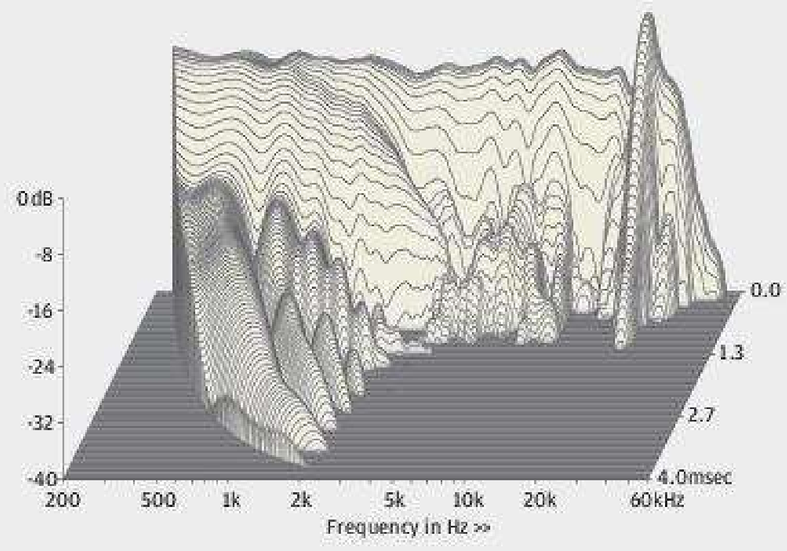
PERLISTEN S5T

With the same DPC array as the S7t [*HFN* Apr '22], but married to just a single pair of 180mm TPCD bass/mid drivers, the S5t is cut from the same sonic cloth, albeit with slightly reduced sensitivity and bass extension, and increased midrange/treble distortion. Measured fractionally above the axis of the central beryllium dome tweeter – the likely seated listening axis with the speakers tipped back by 2° – the Perlisten S5t's response [Graph 1] is very slightly dished but actually more uniform than that of the S7t with tighter ±1.9dB and ±1.7dB errors, respectively, as it builds back to a slight peak at 10kHz. The response dips just prior to the familiar 24kHz dome resonance [pink shaded area, Graph 1, and CSD waterfall, Graph 2]. Pair matching is a 'looser' 1.2dB (200Hz-20kHz) and while no grilles were supplied, we've measured a benign, circa ±0.5dB variation in mid/presence band output with previous Perlisten speakers. Sensitivity is very close to Perlisten's claimed 89.5dB at 89.3dB/1kHz and 88.8dB (500Hz-8kHz) here, but this is ~2dB lower than the S7t and partially explains the S5t's higher 0.6-1% THD at 90dB SPL/1m.

The (diffraction-corrected) bass rolls away a little earlier than might be expected at 60Hz (–6dB re. 200Hz), a product of the 180mm drivers' 60-500Hz range (–6dB) and muted 27Hz port/slot tuning, but boundary reinforcement will improve this figure in practice. Nevertheless, the generous sensitivity and clean bass comes at the expense of a modestly demanding load – a dip to 2.89ohm/155Hz and 3.0ohm/15.9kHz with maximum swings in phase angle of +59°/20kHz and –50°/80Hz lead to dips in EPDR of 1.25ohm/105Hz and a less concerning 1.06ohm/23kHz. **PM**



ABOVE: Response including nearfield summed driver/port [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Left, black; right, red



ABOVE: There are minor modes from 500Hz-3kHz and 10kHz but the S5t is generally well damped and 'clean'

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V – 1kHz/Mean/IEC)	89.3dB / 88.8dB / 87.2dB
Impedance modulus: minimum & maximum (20Hz–20kHz)	2.89ohm @ 155Hz 22.5ohm @ 53Hz
Impedance phase: minimum & maximum (20Hz–20kHz)	–59° @ 70Hz +50° @ 998Hz
Pair matching/Resp. error (200Hz–20kHz)	1.2dB / ±1.9dB/±1.7dB
LF/HF extension (–6dB ref 200Hz/10kHz)	60Hz / 30.6kHz/33.2kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.09% / 0.6% / 1.2%
Dimensions (HWD) / **Weight** (each)	1119x240x400mm / 43kg

MM/MC phono preamplifier
Made by: MoFi Electronics, Chicago, USA
Supplied by: Karma-AV Ltd, York
Telephone: 01423 358846
Web: www.mofielectronics.com; www.karma-av.co.uk
Price: £5999

MoFi MasterPhono

When vinyl king, MoFi, finally made the move into hardware it sought out designers of proven pedigree – the MasterPhono is scripted by none other than Peter Madnick

Review: **Adam Smith** Lab: **Paul Miller**

MoFi Electronics has gone from strength to strength in the last few years, helped by the roster of designers drafted in to create its products. Spiral Groove's Allen Perkins worked on its UltraGold MC cartridge [*HFN* Jan '22] and MasterDeck turntable, while ex-TAD/ELAC Andrew Jones is responsible for its SourcePoint loudspeakers [*HFN* Apr & Aug '23]. Now comes the £5999 MasterPhono, a flagship phono stage from the pen of Peter Madnick, a designer best known for the iconic Audio Alchemy brand and his work as part of the Constellation Audio team [see boxout, p67].

This phono stage, the result of a two-year project, is effectively a twin-chassis product held between shared wooden sleeves that hold the power supply and amplification circuitry apart. MoFi wanted a single unit that would allow easy use in a studio environment if required, while Madnick was set on an outboard PSU, so the result is the 'best of both worlds' solution pictured here.

INNER TUBES

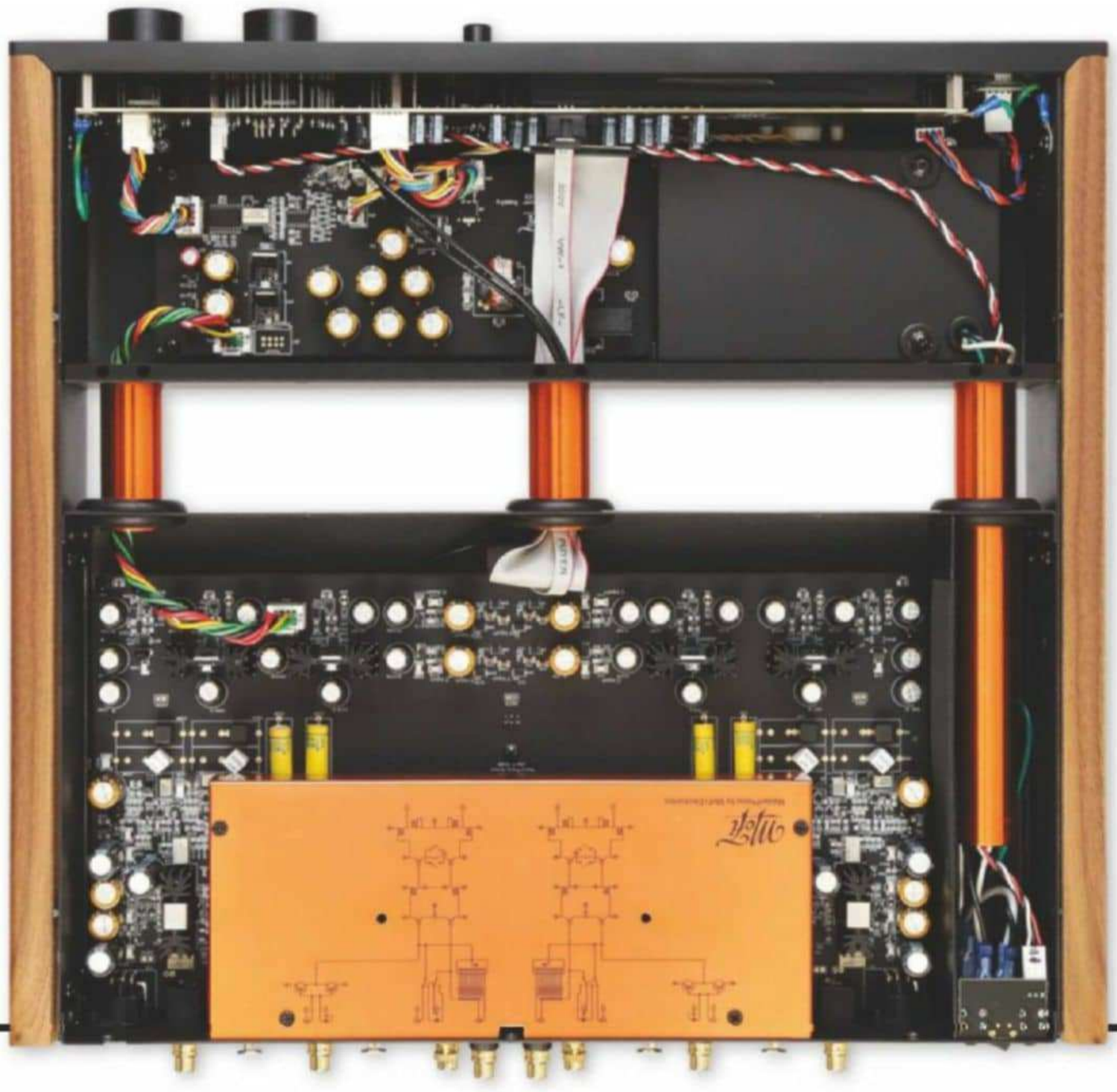
Look into the MasterPhono with the lid removed [see pic, right], and it's clear that it comprises two sections, separated by three copper-plated tubes. The front section (top of image) contains the unit's PSU, plus the microprocessor-based control circuitry behind the front panel, and connections between the relevant sections are carried through those copper tubes. The one on the right takes the input AC from the rear panel, the centre carries control signals between the front panel and the main circuits, and the left the DC supply from front to rear.

Meanwhile, at the back of the unit, the amplification circuitry is close to the rear panel and sockets in order to minimise signal path length. As for the FET-based front-end, this is housed inside a further copper box for both shielding and temperature control. Finally, all amplification within the MasterPhono is discrete and RIAA equalisation is passive [see PM's Lab Report, p69].

The MasterPhono offers three inputs, selected on the front panel. Options 2 and 3 are conventional 'voltage' inputs on balanced XLRs and unbalanced RCAs, respectively. Gain options of 40, 50, 60 and 70dB and loading options of 15, 30, 50, 75, 100, 500, 1k, 10k or 47kohm are applied to both these inputs, but there is no defined 'MM' or 'MC' setting as such. There is also an 'OPT' setting on the load control that switches in a pair of rear-panel sockets to which can be fitted your own choice of loading resistor. There's no capacitance adjustment for MM cartridges – this is fixed at 150pF – although capacitors can also be fitted to the rear-panel loading sockets if desired. Both mono operation and a subsonic filter are also available.

SETUP SAVIOUR

Settings applied to each input are 'remembered' and recalled each time that input is selected. This ease-of-use is bolstered by the inclusion of a lovely, chunky remote control handset [p69] that will operate the MasterPhono's functions from the comfort of your chair, and makes cartridge loading comparisons a doddle. All switching is via relays, so there is a slight delay when changing settings, but this also means that adjustments can be made 'on the fly' with minimal fear of thumps through the loudspeakers.



RIGHT: The two chassis enclosure, with PSU and logic [top] separated from current/voltage mode inputs, passive RIAA and balanced outputs [bottom], includes 'communication' via three copper-coloured tubes. Inputs are screened under a metal can that carries a basic schematic

Input number 1 is where things get interesting. This is a transimpedance or 'current' input, designed for cartridges with a very low, typically <10ohm, generator impedance. Low coil-count, low-impedance cartridges will typically deliver sufficient current in response to the near-shorted input of the MasterPhono's I-to-V stage. The four gain settings are still available, but the load switch LEDs are extinguished when the fixed-impedance Input 1 is in use.

The front-panel VU meters, which are bathed in orange light, not only look superb but can also aid in cartridge setup – I use *The Ultimate Analog Test* LP from Analogue Productions [AAPT1]. The test mode is instigated by a long press on the MasterPhono's 'Meter' button (which is otherwise used to switch the VU meters on or off). Setup is in three distinct steps. The first allows you to choose a reference level while the second tackles cartridge azimuth adjustment while playing a track with its two channels out of phase – the lower the meter reading, the better. The third step uses a 10kHz test track to check upper frequency output level as a guide to optimal load setting. If you don't happen to have any test gear to hand, this can remove a lot of the guesswork!

Fit and finish of the full-width but slim MasterPhono is excellent and the wooden end cheeks are available in Walnut or Black. Two earth terminals are fitted to the rear panel – one connected to signal ground and one to chassis ground, and they therefore sit at slightly different electrical potentials. Owners can experiment to achieve the lowest hum and noise in their own systems.

> 'My room was filled with the majesty of the Albert Hall'

OPEN WORLD

With the MasterPhono connected to my regular Yamaha C-5000 preamp [*HFN* Aug '20], I fed it from both a Michell Gyro SE/SME 309/Ortofon 2M Black MM into its unbalanced phono input, and the new Musical Fidelity M8xTT [see p48], with Clearaudio MC Essence pick-up [*HFN* Aug '17], into its balanced XLR input. The MF deck was agnostic in terms of earthing but the Michell/SME system was quieter with the deck earthed to the chassis ground terminal and the arm to the signal ground.

With either turntable, it was apparent the MasterPhono is mostly transparent, your front-end determining the levels of detail heard. That said, a subtle frisson of midband warmth gives vocals and acoustic instruments an appealing richness. That's not to say this phono stage is all warm and fluffy, as it's not. Rather, it has an open, detailed and sweet nature that sparkles by just the right amount at the right time.

The treble is fairly even-handed, offering a pleasing crispness but with a highly alluring level of sophistication. Obviously, this depends on optimising the loading and gain for your chosen MM/MC but the remote is a boon for dialling-in the ideal settings while you stay seated. Neither does this phono stage favour MM over MC types, or vice-versa, so it will give fine results if you are running multiple decks, or arms, equipped with a range of pick-ups.

ABOVE: Traditional 'VU' meters can be used to optimise azimuth/channel balance and are bathed in the same warm orange glow as the LEDs that indicating loading, gain, input, *etc*

FRUIT PUNCH

The percussion effects on The Kane Gang's 'Motortown' [*Miracle;* Kitchenware Records KWLP7] were clean and snappy, but not lacking in body. This is an old 1980s pressing whose transient detail often sounds slightly blurred, but the MasterPhono endowed it with an almost digital sense of clarity – in a good way.

At the other end of the frequency range, the bass seemed equally crisp and focused. Whether acoustic, electric or synth-based, basslines were delivered with real confidence. The solid lows of

MADNICK'S MISSION

A well-known name in the audio industry, Peter Madnick's career now spans over 40 years, beginning in retail where he started working in the stockroom of a local hi-fi store, aged 15, before 'graduating' to the sales team a year later. Following college, Madnick and two colleagues established a new hi-fi store in Massachusetts in 1977, which remains in business today.

In 1979, Madnick joined Francis G Dennesen at Dennesen Electronics, also in Massachusetts, where he developed the famous Geometric Soundtracktor cartridge alignment tool, but he was on the move again six years later to California where he worked for a period as a consultant, before co-founding Audio Alchemy in 1989. AA produced a wide range of audiophile DACs, jitter suppressors, headphone amps, preamps, power amps and phono stages, and was one of the first brands to make widespread use of the I²S digital interface.

The original incarnation of Audio Alchemy lasted until the late 1990s and, after a spell designing video projectors for Runco, Madnick was drawn back to audio as head of Constellation Audio's engineering team. Audio Alchemy rose from the ashes in 2013 before being brought by ELAC in 2016 – Madnick still designs electronics for ELAC, and consults for other brands. He joined MoFi Electronics in 2020 as senior electronics engineer, and the MasterPhono is the first fruit of this appointment.

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ABOVE: The MasterPhono includes traditional 'voltage' inputs and low impedance 'current' inputs for, typically, low output MCs. Both are available on RCAs and XLRs though the latter are only truly balanced with MCs. Outputs are also on RCAs/XLRs

Let's Eat Grandma's 'Sunday' [*Two Ribbons*; Transgressive Records TRANS565XD] sounded fruity and fulsome, with a well-judged balance between weight and tunefulness. The MasterPhono also teased out percussive and contrasting ambient detail from the recesses of the soundstage. It seemed to want to let me to know they existed, just in case I hadn't noticed.

BREATH TEST

It's the midband that is the real star of the show, however. The MasterPhono's lifelike revelation of textures makes it easy to concentrate on the way sounds are being formed, as well as the sounds themselves. Its perceived dynamic range is also impressive, so the intake of breath from a close-mic'd singer is as vivid as the manic pounding of a kit from an over-enthusiastic heavy metal drummer. Kasey Musgraves and her solo piano accompaniment on 'Rainbow' from the *Golden Hour* LP [MCA Records B0027921-01] was sublimely rendered, and both were locked solidly between the speakers.

Then there's the deep, wide and well-ordered soundstaging. 'Broadcasting House' from Public Service Broadcasting's *This New Noise* live LP [Test Card Recordings TCRVA05] starts gently with piano, bass and drums next to the usual array of speech samples the band is known for. However, towards the close when the BBC Symphony Orchestra comes in, my listening room was seemingly filled with the atmosphere and majesty of the Royal Albert Hall. Even the round of applause at the end appeared to be coming from all around the room.

Although my Clearaudio MC Essence's 11ohm source impedance is above that recommended for the phono stage's current input (a 1-2ohm low-output MC would be ideal), I was still intrigued to try it. The results were instructive, for while the sound gained extra punch and pace, and the stereo image spread even further than via the voltage input, there was still a slight loss of treble clarity and bit more stridency across the upper midband.

Clearly, the MC Essence is not ideally suited to drive this near-shorted 'current' input, but it felt as if the MasterPhono was still pulling more from the cartridge. So if you have an MC with the recommended impedance of just a few ohms, the current input would be the one to try first. For 98% of other MCs, the MasterPhono simply sings via its traditional voltage inputs!

LEFT: Remote functions for phono preamps are rare, but MoFi offers armchair access for input, gain, loading, subsonic filter, mono/stereo, mute and display brightness

HI-FI NEWS VERDICT

Thanks to its various balanced/SE inputs and outputs, excellent range of adjustments and some novel new features, MoFi's smart-looking MasterPhono is a pleasure to use. More importantly it's a superlative performer, able to deliver all the detail, punch and musical emotion of your vinyl collection. The £6k demanded isn't exactly pocket change, but if you have the budget, then an audition is mandatory.

Sound Quality: 87%

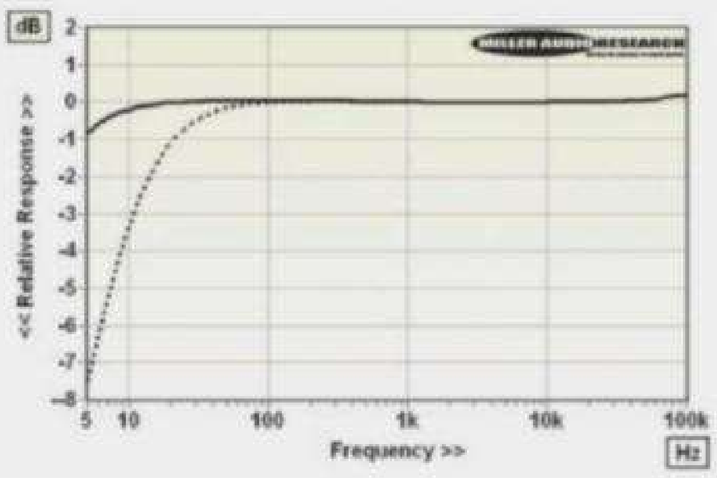
0 - - - - - - - - 100

LAB REPORT

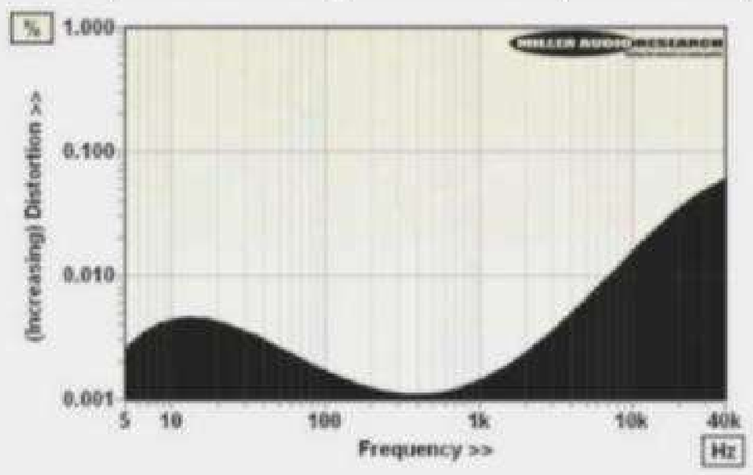
MOFI MASTERPHONO

Tested via its balanced 'voltage' inputs, and partnering balanced outputs, the MasterPhono's notional +40dB, +50dB, +60dB and +70dB gain settings are, in practice, +44.3dB, +54.2dB, +64.0dB and +73.9dB, respectively. This, and the 15ohm-47kohm input load range (custom values may also be applied) endows this phono stage with the capacity to accommodate a very wide range of pick-ups from high output MMs with a sensitivity of 6.1mV to low output MCs offering just 200µV (all 1kHz/5cm/sec). However, while the passive RIAA eq is very accurate [see below] it does soak up a lot of headroom, limiting the respective input overload margins to 66mV, 22mV, 6.8mV and 2.08mV. So while the +40dB and +60dB gain settings offer a good +22.5dB headroom with 5mV MMs/500µV MCs, respectively, the +50dB/+70dB settings are limited to just 12.5dB which is really only suitable for low output MMs and MCs.

Noise is a little lower than average, so the MasterPhono achieves an A-wtd S/N of 88.5dB with the +40/50dB settings treated as MM, and 78.2dB with the +60/70dB options as MC. Both these figures fall well inside the limit imposed by rumble/vinyl noise from the best turntable solutions as does its low distortion – an impressive 0.001-0.035% [20Hz-20kHz, re. 0dBV; Graph 2] being 500-1000x *lower* than that measured from the best MM/MCs reviewed in *Hi-Fi News*. MoFi specifies its balanced XLR output at 10V which is precisely met in practice (re. 1kHz/<1% THD) as is the remarkable amplitude flatness of the RIAA-corrected response – true to ±0.02dB from 20Hz-20kHz, rising imperceptibly to +0.2dB/100kHz [see Graph 1, below]. The built-in bass roll-off amounts to –3dB/3Hz, increasing to –3dB/11Hz with the subsonic filter engaged [dashed trace, Graph 1]. **PM**



ABOVE: RIAA-corrected frequency response from 5Hz-100kHz (subsonic filter, dashed trace; balanced i/o)



ABOVE: Distortion versus frequency re. 0dBV from 20Hz-20kHz (MM +40dB gain setting, balanced o/p)

HI-FI NEWS SPECIFICATIONS

Input loading (MM/MC)	47kohm/150pF / 15ohm-47kohm
Input sensitivity (re. 0dBV)	6.1mV/1.95mV / 635µV/201µV
Input overload (re. 1% THD)	66mV/22mV / 6.8mV/2.08mV
Max. output (re. 1% THD) / **Imp.**	10.1V / 54ohm (balanced)
A-wtd S/N ratio (re. 0dBV)	88.5dB / 78.2dB (MM/MC)
Freq. resp. (20Hz-20kHz/100kHz)	–0.02dB to +0.01dB / +0.17dB
Distortion (20Hz-20kHz, re. 0dBV)	0.001-0.035%
Power consumption	22W
Dimensions (WHD) / **Weight**	432x89x400mm / 6.8kg

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Supplied by: B&W Group Ltd
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B&W 603 S3

Series 3 sees the eighth generation of B&W's evergreen 600 series, headed here by the 603 S3 floorstander
Review: **Jamie Biesemans** Lab: **Paul Miller**

Bowers & Wilkins might be one of the largest loudspeaker manufacturers around, but surprisingly it doesn't have a very broad offering, fielding considerably fewer models than, say, KEF or Focal. Leaving CI products aside (and the iconic but no longer revolutionary Nautilus), there are only three main loudspeaker families coming out of Worthing, and as the 800 D4 series [*HFN* Nov '21, Feb '22, May & Sep '23] and 700 S3 series [*HFN* Mar '23] represent the most recent major updates, it was inevitable that the nearly 30-year-old 600 series would follow suit.

The current refresh also brings the 600 series to S3 status, but is in fact the seventh or eighth generation, depending on whether you consider the 603 S2 Anniversary Edition [*HFN* Jan '21] to be a full-blown update. The new range is all about hitting a competitive price point by taking a trickledown approach, yet it quickly becomes clear the 603 S3 closes the gap with its more expensive brethren, and this is also true when it comes to the price tag – the range-topping 603 S3 floorstander tested here, at £1999, is about £500 more than its predecessor. Inflationary pressures have inevitably played a part here, but it includes an outlay for new technology too.

A CUT ABOVE

There are no changes to the structure of the lineup, so the new 600 series remains a streamlined family of speakers. The 603 S3 is the single floorstander on offer, while below it are the £749 606 S3 and £599 607 S3 standmount/bookshelf models (for which a new FS-600 S3 stand is available). A home theatre-specific centre speaker, the £649 HTM6 S3, completes the collection.

Three distinct colourways should give you enough options for matching the 603 S3 with your listening room. Matt black and satin white finishes are nicely done, but the oak edition (pictured here), which sports a white baffle and a seamlessly applied oak veneer to the cabinet's top and sides, really looks the part. Even considering the higher price tag, the 603 S3 has a build quality and style that's a cut above the norm.

ALL HAIL TITANIUM

As said earlier, there's a lot of trickledown technology at work here. The 603 S3's 150mm FST midrange driver, with proprietary Continuum cone material, is a familiar sight, but benefits from an upgraded motor assembly derived from the 700 S3 series. Improved motor systems also drive the speaker's two 165mm woofers, and these are vented by a new rear-firing bass port of '700 series specification'. B&W says this also aids in stiffening the 603 S3's enclosure, as does the new terminal tray, in addition to refinements in cabinet bracing. The crossover network has been given a 700 S3 flavour too, in the form of higher-quality capacitors.

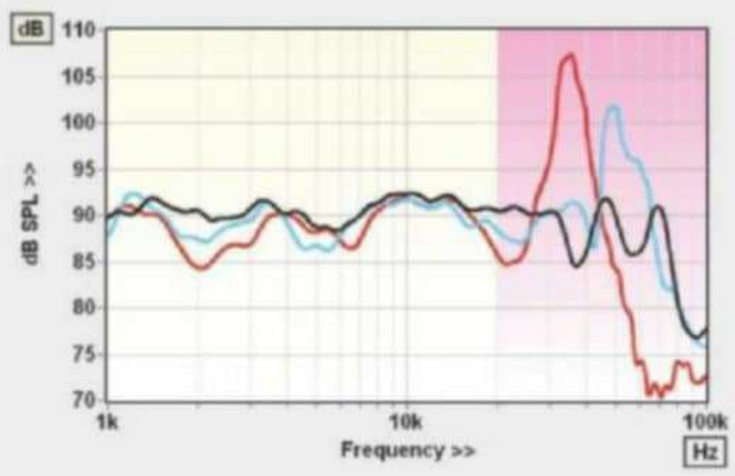
> 'The fret-sizzling guitar solo was an homage to '80s Brit metal'

The most significant – and presumably most expensive – upgrade for this generation is to be found in the tweeter [see PM's boxout, p71]. Diamond or carbon domes, as used higher up B&W's range, are not tenable in this price category, so instead the manufacturer has developed a new titanium dome tweeter. A two-part design, this features a 25µm-thick main dome framed by a marginally chunkier (30µm) titanium ring, and fires through a new mesh grille derived from the 800 D4 series' tweeter assembly. For this generation, the positioning of the tweeter is also closer to the midrange below (their trim rings 'overlap') to improve driver integration.

The titanium dome is mounted into an elongated tube that's hidden inside

RIGHT: The S3 version of the 603 features a new 25mm alloy/titanium dome tweeter, the familiar 150mm FST midrange driver with Continuum cone, plus two 165mm paper-coned bass drivers with 700 series-inspired motors

BREAK UP BLUES



While soft dome tweeters are still popular in some quarters [*HFN* Nov '23] most loudspeaker engineers are typically working with very light and stiff treble drivers in an effort to extend the ultrasonic response of their designs. After all, why use 'hi-res' 96kHz/DSD128 media if the speaker's response dips above 20kHz? B&W certainly pushes at the boundaries of response [see Lab Report, p73] with its custom tweeter diaphragms. Nevertheless these 'light and stiff' domes usually have a pronounced primary breakup mode – not the case with most self-damping soft domes – that must be deferred to as high an ultrasonic frequency as possible [see inset Graph].

The choice of materials impacts directly on the achievable performance, so the costly 'Diamond' dome employed in the 801 D4 [*HFN* Nov '21] has a well-suppressed double resonance at 46kHz and 69kHz [black trace], while the 25mm decoupled 'Carbon' dome used in the 703 S3 [*HFN* Mar '23] breaks up at a slightly lower (but still very high) 49kHz, albeit at an amplitude some +12dB above the speaker's mean output [blue trace]. With less budget to play with in the 603 S3, but with a titanium ring strengthening the 25µm-thick dome, B&W's engineers have still achieved a high 35kHz primary resonance even if this is now a vigorous +15dB above the midband level [red trace]. PM

the cabinet. The principle behind this design is nothing new for B&W – albeit more apparent with its 'Tweeter-on-Top' models – and is intended to progressively attenuate the rear output of the tweeter, minimising rear reflections while also isolating the driver from pressure variations within the main cabinet.

EYES WIDE OPEN

Rated by B&W at 90dB sensitivity – and measuring close to that figure [see PM's Lab Report, p73] – the 603 S3 looks, on paper, to offer slightly higher output with lower-powered amps than the S2 model. During testing I hooked up the speakers to Denon's diminutive CEOL RCD-N12 system and had them effortlessly blasting out the percussion in the 3rd movement of Wranitzky's Symphony in C Minor [Deutsche Harmonia Mundi 19658702252; 96kHz/24-bit]. Even in this set-up, the 603 S3s performed very capably indeed, presenting a nicely defined and wide-open soundstage. It was bit of an eye-opener.

That said, care still needs to be taken with amplification as the 603 S3 offers a more critical listen than first appears. The combination of these floorstanders with a Bluesound PowerNode Edge pushed this wireless streaming amp out of its comfort zone, for example – the unit is impressive in the right setting but marrying it with the 603 S3s didn't have the desired outcome. Here the same album was delivered with noticeable glare and harshness.

This all confirms that while the 603 S3 is B&W's entry-level, it's not a 'budget' speaker, and pairing it with Primare's Class D I15 integrated amplifier [*HFN* Oct '18] suited it a lot better. Playing the recent *Stone* album from heavy metal band Baroness [Abraxan Hymns ABXN008-1], via an Ortofon 2M Bronze-equipped ELAC Miracord 90 [*HFN* Jul '17] through a Primare R15 phono stage, delivered a substantial and very rewarding rendition of the track 'Choir'. Distorted guitars possessed just the right amount of crunch and drive, making for a thrilling listen, and this was the case too with the more manic 'Last Word', where the familiar Continuum midrange and new titanium dome tweeter presented a tightly controlled sound with no sign of muddiness or energy loss.

SPATIAL AWARENESS

Halfway through the latter track there's a fret-sizzling guitar solo which sounds like an homage to 1980s British metal, albeit recorded in a small studio room. The shift in presentation highlighted the 603 S3's ability to communicate those spatial cues higher up the frequency band – even with dense rock like this, let alone orchestral pieces like the Wranitzky symphony.

The Baroness album is the kind I probably wouldn't have preferred to play on any earlier generation of the 603, but now there's a slight softening to the treble

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which makes these Bowers & Wilkins speakers decidedly more 'metal-friendly'. There's a neat (or annoying, depending on your point of view) trick to this disc as well, for at the end of the groove the record plays a sinusoidal-like loop to attract your attention – it certainly did here.

Listening to Melanie De Biasio's new *Il Viaggio* release [PIASLL202CD] provided another change of pace, but the performance remained

LEFT: Upgraded dual 4mm cable terminals – derived from the 700 series – are split to facilitate bi-amping and/or bi-wiring. Low-turbulence 'Flowport' reflex port fits flush into the cabinet

extremely impressive. The 603 S3 proved able to envelop the listening position and create a feeling of depth that was suited to this new album, which portrays the Belgian-born artist's return to her ancestral homeland in northern Italy. The first part of the album offers intensely melancholic compositions verging on soundscapes, with 'We Never Kneel To Pray' a beautiful highlight featuring a slow piano reminiscent of Ólafur Arnalds and other Icelandic composers. It was all there: the breathless singing off in the distance, the slight hesitation when piano keys are pressed, a sparse flute hardly daring to intrude on the whole. Remarkably for a speaker in this price class, the 603 S3 managed to expose incredible detail and the smallest nuances.

IMMERSED IN MUSIC

Indeed, I'd suggest it has a surprising sense of definition. With the same CD, heard through B&W's 805 D4 Signature [full review in *HFN* Jan '24], there was a profound sense of being immersed in these sonic landscapes. What about the far more affordable 603 S3? It serves up a lot of the same experience. Okay, those flagship standmounts excel in many domains – there's no beating better technology – but there's also no denying these updated entry-level speakers bring much of the best of Bowers & Wilkins to the table.

HI-FI NEWS VERDICT

The S3 upgrade pushes the 603 into new territory. Even though it doesn't deploy Bowers & Wilkins' most advanced technologies, this entry-level loudspeaker moves closer to the 700 and even the 800 series in terms of clarity and soundstaging. 'Trickledown' might have a bad rap when it comes to economics, but in the case of audio design it proves worthwhile. For the money this is an excellent loudspeaker.

Sound Quality: 88%

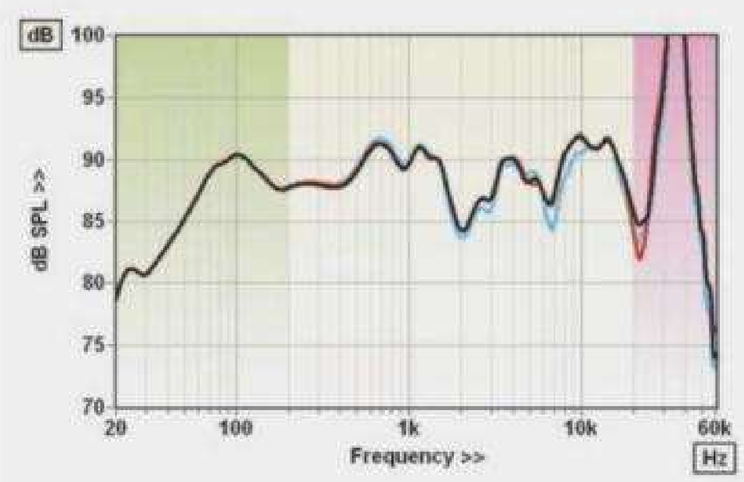
0 - - - - - - - - 100

LAB REPORT

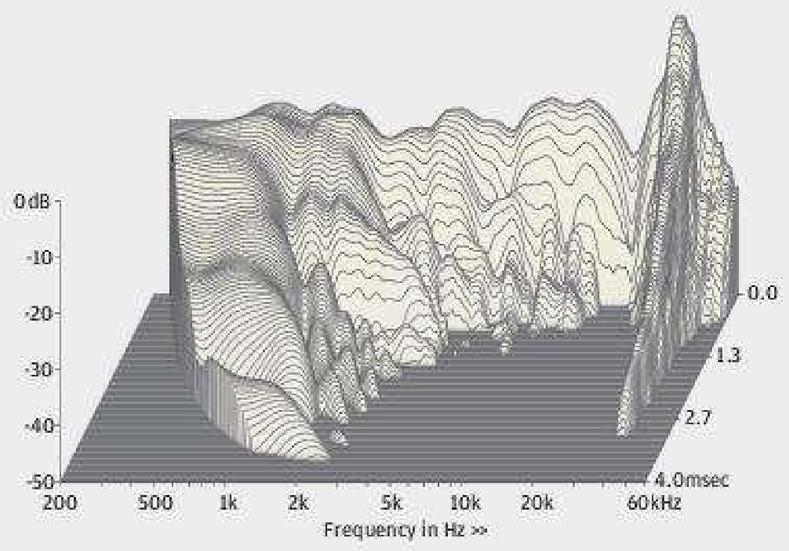
B&W 603 S3

The stunning standard of finish debuted in the S2 Anniversary [*HFN* Jan '21] is continued in the 603 S3 pictured in these pages, alongside a boost to both the loudspeaker's sensitivity – up from 88.6dB to 89.7dB/1kHz/1m courtesy of 700 series motor assemblies – and the control over its forward response [see Graph 1, below]. The S2 Anniversary's 1.5kHz-3.5kHz trough and notch at 6kHz are now traded for an essentially flat but undulating trend with reduced ±3.8dB and ±3.9dB response errors that bears more than passing resemblance to that seen from the 803 D4 [*HFN* May '23] and 703 S3 [*HFN* Mar '23]. Pair matching is a spectacular 0.45dB (200Hz-20kHz) while the grille exerts little change to the trend [blue trace, Graph 1].

The new titanium dome tweeter has an almost identical +15dB/35kHz primary resonance [pink shaded area, Graph 1, and CSD waterfall, Graph 2] as the alloy 'double dome' of the S2 models [see boxout, p71] but with a –6dB dip at 20kHz and ultimate extension of 48kHz (–6dB re. 10kHz). Distortion is a little higher here too (0.35% vs. 0.1%) but the Continuum cone midrange offers a far *lower* 0.04% (all 90dB SPL/1m). Distortion is also a low 0.4% through the bass where the two 165mm pulp drivers work over a 57Hz-250Hz (–6dB) bandwidth, supplemented by the rear-facing port at a 'peaky' 22Hz to deliver a diffraction-corrected extension of 40Hz [green shaded area, Graph 1]. Once again, however, the amplifier load is fairly tough – a minimum of 2.85ohm/113Hz coupled with relatively large swings in impedance phase from –72°/64Hz to +50°/1.3kHz, all resulting in a low EPDR of 1.07ohm/88Hz. **PM**



ABOVE: Response inc. nearfield summed driver/port [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Left, black; right, red; w. grille, blue



ABOVE: Y scale is increased here to reveal 35kHz treble dome resonance. In-band modes are well-controlled

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V – 1kHz/Mean/IEC)	89.7dB / 88.7dB / 87.2dB
Impedance modulus: minimum & maximum (20Hz–20kHz)	2.85ohm @ 113Hz 27.7ohm @ 52Hz
Impedance phase: minimum & maximum (20Hz–20kHz)	–72° @ 64Hz 50° @ 1.3kHz
Pair matching/Resp. error (200Hz–20kHz)	0.45dB/ ±3.8dB/±3.9dB
LF/HF extension (–6dB ref 200Hz/10kHz)	40Hz / 48.3kHz/48.2kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.4% / 0.04% / 0.35%
Dimensions (HWD, no plinth) / **Weight** (each)	985x190x340mm / 28kg

Network-attached DAC/streamer
Made by: Masimo Consumer, Irvine, CA, USA
Supplied by: Masimo Consumer Europe, The Netherlands
Telephone: 02890 279830
Web: www.denon.com; www.masimo.co.uk/consumer-audio
Price: £1399 (£1599 for 'graphite silver' colourway)

Denon DNP-2000NE

Following hard on the heels of Denon's DCD/PMA-1700NE SACD player/amplifier, this new network-attached DAC brings a host of streaming options – including HEOS

Review: **Jamie Biesemans** Lab: **Paul Miller**

Our review of the Denon PMA-1700NE amplifier [*HFN* May '23] included the observation that the Japanese brand was missing a standalone streamer. A glaring oversight, it seemed at the time, as Denon in all other respects is a believer in offering similarly dressed separates for a neat hi-fi stack. So while you could pair the PMA-1700NE (or another PMA series amp) with a DCD series CD player or a Denon turntable, if you wanted to listen to your Tidal playlists you had to look elsewhere. The introduction of the £1399 DNP-2000NE closes the loop.

Manufactured at Denon's Shirakawa factory, and sporting the sturdy chassis and metal faceplate to complement other Denon components, this streaming DAC isn't only meant to be a companion for the PMA-1700NE. As the different model number hints, it could be combined with other Denon amplifiers, such as the older PMA-1600NE or '2500NE [*HFN* Aug '16].

Denon makes this clear by providing a third colour option next to the traditional black and silver – for a £200 premium, the DNP-2000NE is also available in the luxurious Graphite Silver colourway found on the brand's PMA-A110 and DCD-A110 models [*HFN* Dec '20], launched to celebrate its 110th anniversary. Owners of these limited (but still available) birthday units can add the streamer and retain the seamless look of their system.

FOUR IS THE MAGIC NUMBER

At the heart of the DNP-2000NE are four low-power ES9018K2M chips in a quad DAC arrangement. These are not the latest or greatest designs from ESS, but as PM's Lab Report shows [see p77] that doesn't mean the unit underperforms, helped by the differential deployment per channel and Denon's 'DAC Master Clock' technology. However, don't set off looking for a broad offering of digital filter options, as Denon prefers a fixed filter, and its own Ultra AL32 processing. This upsamples the digital stream, and is a stalwart of other Denon products, including the CD/SACD-playing DCD-1700NE [*HFN* May '23].

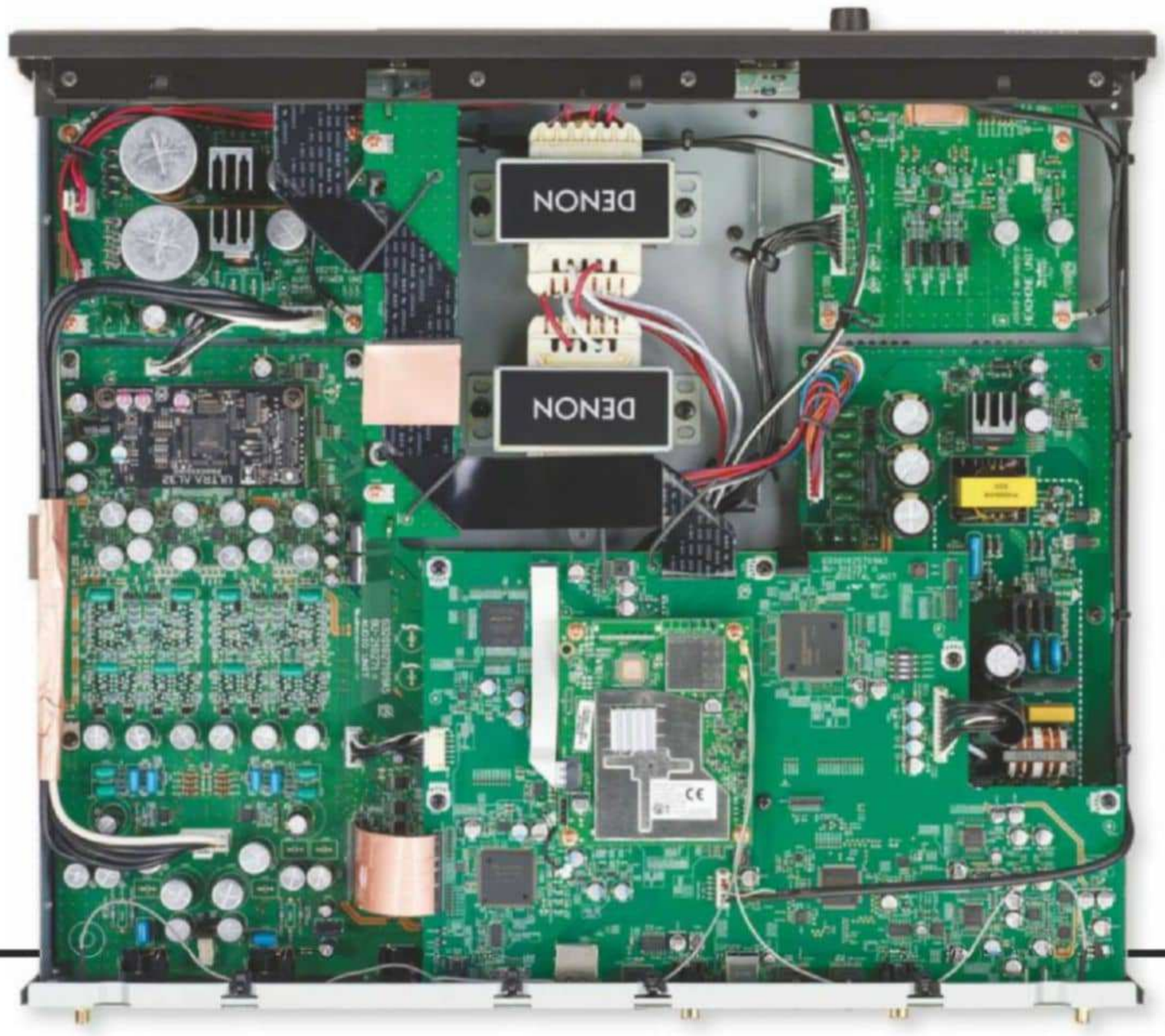
SCREEN PARTNER

Perhaps to make up for being a bit 'late to the game', the DNP-2000NE is more than purely a network audio player with a built-in DAC. A plethora of digital inputs allows easy connection of external digital sources, including a computer via USB-B. This supports 384kHz/32-bit PCM and 11.2MHz DSD, and such files are also playable over your home network, via Ethernet or in-built Wi-Fi, bandwidth permitting. Optical and coaxial connections are also provided for both source hardware and to use the DNP-2000NE as a digital transport.

Something of a surprise on a DAC at this price is the HDMI ARC port. This means the unit can bridge the gap between your television and stereo system, making it an option for anyone with a legacy amp to improve TV sound, if output as PCM. It's quite clever: you can use the supplied IR control cable to link the DNP-2000NE with a compatible Denon amplifier, and then drive the latter's volume via your TV's remote, even if you're connected to the fixed line output from the streamer. Using the DNP-2000NE's variable output, meanwhile, you can drive active speakers – the HDMI CEC protocol will govern the DSP volume control in the '2000NE.

MULTIPLE CHOICE

Regards the unit's streaming functions, these are myriad – few manufacturers these days provide only one option because audiophiles want to use their preferred service or software, and not be forced to use a brand-specific app. Denon endows the DNP-2000NE with Apple AirPlay 2, and support for streaming over (two-way) Bluetooth and UPnP. In short, owners can



RIGHT: Two mains transformers [top] feed separate PSUs for the wireless/BT PCB [bottom], XMOS and Burr-Brown digital input receivers [bottom right], 'Ultra AL32' DSP [top left] and analogue stage with four ES9018K2M DACs [left]

ABOVE: The smoothly contoured fascia matches most of Denon's recent separates. USB drives are supported via the USB-A port but album text, not artwork, is shown on the display

access just about any streaming service or their own network-stored music files. Spotify Connect is onboard too, and the DNP-2000NE leverages HEOS, the in-house app-driven streaming and multiroom platform that has been a feature on Denon hardware (including wireless speakers and soundbars) for almost ten years [see boxout, below].

Something missing from the specification sheet is Roon Ready status, which has become a feature of many network audio players targeting the 'above entry-level' crowd. Through AirPlay 2, the DNP-2000 does have 'Roon Tested' status, but this doesn't deliver total control nor the streaming of high-resolution material. Additionally, quite a few modern streamers, such as Auralic's Aries G1.1 [*HFN* Jun '23], can function as a media server if you attach storage. This isn't possible with the DNP-2000NE, but it will playback hi-res file formats (FLAC, ALAC, WAV, AIFF and DSD) from the USB port on the front-panel, adjacent to its 6.35mm headphone output.

> 'It delivers the pristine classics, and Friday night playlist'

SONIC SYNERGY

While the DNP-2000NE is a streamer ready for all kinds of configurations, it's nevertheless a 'natural' fit with a PMA-1700NE amp and DCD-1700NE CD/SACD player, which were the models I used for the majority of my listening sessions. Together with DALI Rubicon 2 standmount loudspeakers this made for an elegant hi-fi system, and one with a good synergy between the Denon separates.

Offering a detailed performance, the DNP-2000NE proved entirely complementary to the direct and powerful presentation of Denon's amplifier when streaming Kjartan Sveinsson's *Der Klang Der Offenbarung Des Göttlichen* [Society of Sound 101; 48kHz/24-bit]. Part one (or rather 'Teil 1') of this stirring opera composed by the Sigur Rós keyboardist and performed by the German Film Orchestra Babelsberg builds from a snail's pace to a crescendo that hits ever-higher notes. The string section never seems to stop edging further up the scale, which might otherwise be an invitation for some harshness or artificiality to rear its head.

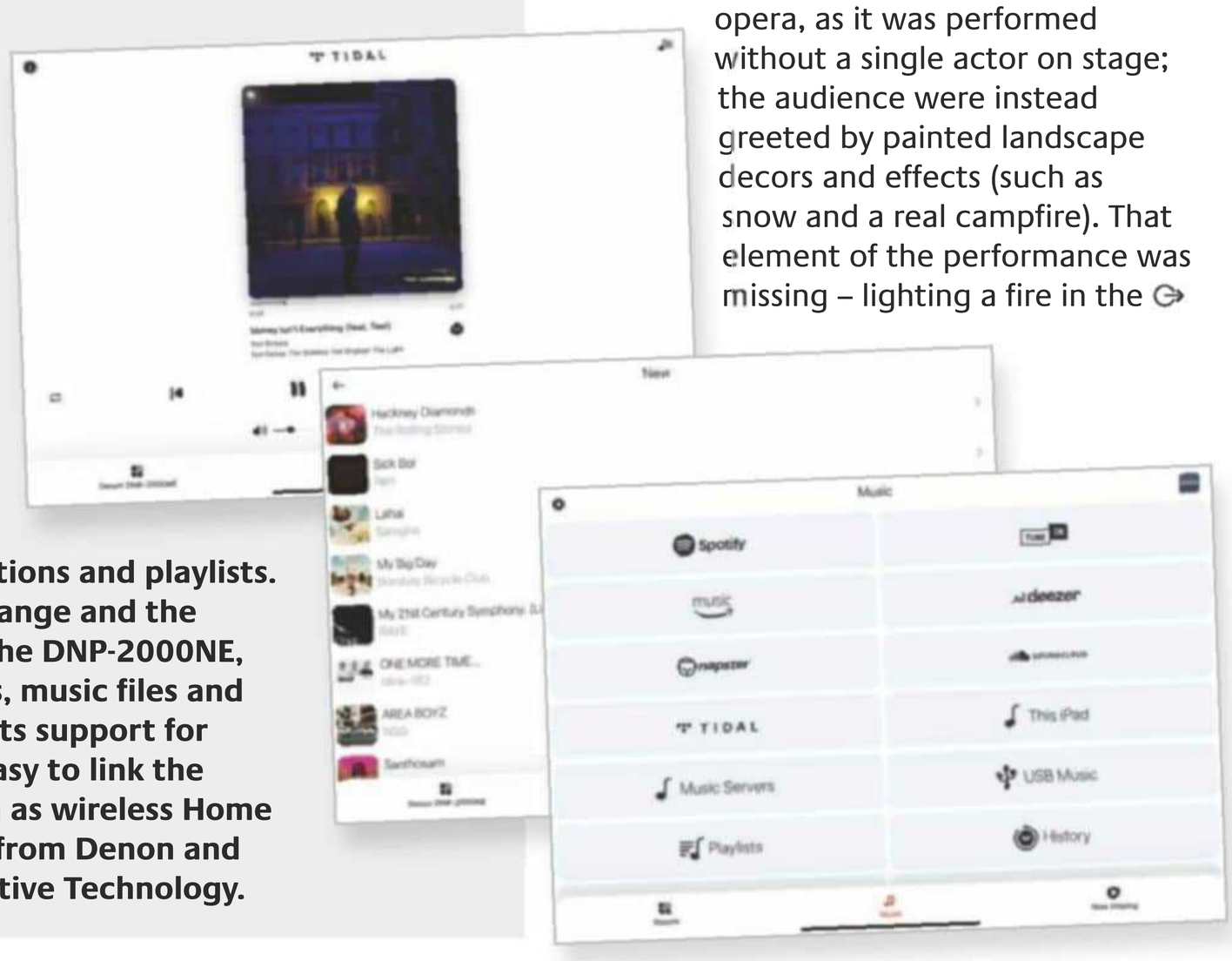
That wasn't case here as the DNP-2000NE impressed with a natural-sounding and airy presentation. Neither did Denon's DAC lose track of the finer detail of the background percussion, which Sveinsson deploys to evoke the crashing of waves, even though – mercifully with this track – it softens up a bit on the high-end, ensuring the final few bars did not grate.

There's a lot of spatial detail on offer during Teils II, III and IV, which add choral singing to the mix. It's quite an unusual opera, as it was performed without a single actor on stage; the audience were instead greeted by painted landscape decors and effects (such as snow and a real campfire). That element of the performance was missing – lighting a fire in the

HEOS HUB UPDATE

The HEOS multiroom, multi-service streaming/controller app has, on the face of it, hardly changed since its introduction in 2014 [see screenshots, right]. Stung, perhaps, by the rich experiences offered by the likes of Sonos, Roon or brand apps like Auralic's Lightning [*HFN* Nov '23], there has been work done behind the scenes, focusing on stability. Platform growth introduced a lot of sub-optimal code, we're told, and clearing that up was the priority until this year. The clean-up operation has paved the way for a major v3.0 redesign that'll turn up in early 2024. One big change is the appearance of a Home screen showing favourite sources, stations and playlists.

In terms of functionality there will be little change and the app will still function as a complete remote for the DNP-2000NE, letting you select and control streaming services, music files and physical inputs. One clear advantage of HEOS is its support for hi-res formats, including DSD streams. It's also easy to link the DNP-2000NE to up to sixteen HEOS devices, such as wireless Home speakers, streaming amplifiers and AV receivers from Denon and Marantz, and audio devices from Polk and Definitive Technology.



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ABOVE: Digital ins include 2.4GHz/5GHz wireless (inc BT) and wired Ethernet, USB-B (384kHz/32-bit and DSD256 as DoP), HDMI ARC, two optical and one coaxial S/PDIF (192kHz/24-bit). Optical and coaxial digital outs are included above fixed and variable analogue outputs on RCAs

listening room is against house rules – but enjoying this music streamed via HEOS on the DNP-2000NE, it was easy to imagine how immersive the performance must have been.

RICH PICKINGS

Comparing the 'virtual' stream of *Mettavolution* by Rodrigo y Gabriela [Rubyworks 538471642; 44.1kHz/24-bit] with the disc version spinning on the DCD-1700NE, there was little difference to be noted – the player uses a Burr-Brown DAC, but both have been similarly tuned. And just as the DCD-1700NE does for discs, the DNP-2000NE is adept at conveying music streams with a sense of emotion. The twang of the strings or the patting of the guitar body on the album's title track were not presented as too dry, but lifelike and with rich harmonics.

The above might suggest that the DNP-2000NE lacks subtlety, so I should be clear that while it doesn't appear to strive for ultimate resolution, it does deliver a coherent performance with a high level of detail and, above all, rhythmic panache. These are fine qualities for a multifunctional product that might not only be called upon to play pristine audiophile classics, but also deliver the Friday night playlist.

The obvious role for the DNP-2000NE is as a network streamer, but listening via its USB-B port is also worthwhile. It's not that this offered a night-and-day improvement, but sampling Cowboy Junkies' *Songs Of The Recollection* [PRPCD160; 44.1kHz/24-bit] via Roon on a MacBook added a smidge of extra openness and a sweeter tone to the slide guitar on 'No Expectations'. Overall, switching back and forth between streaming via rooExtend/UPnP, and my MacBook via USB, it was hard to put a finger on specifics, but the performance felt just a bit tighter with the latter.

YES, BOSS

What about that HDMI input? Well, there's a lot of good music content to be found on your smart TV. One of my favourites is *Bruce Springsteen's Letter To You*, a sweet and poignant Apple TV documentary covering the recording of the artist's 2020 album of the same name, and touching upon Springsteen coming to terms with his advancing years.

I've watched it many times in its Dolby Atmos incarnation, but in stereo through the DNP-2000NE and the rest of the Denon separates it was equally delightful – crisp, enveloping and intense. Everything about the production – the black and white imagery, Springsteen's voice-over, the excellent recording of the band – is made to pull you in. The well-featured DNP-2000NE was up to the challenge.

LEFT: Denon supplies its RC-1248 system remote control with the DNP-2000NE, bringing input selection, volume, mute and access to the configuration menu [see HEOS boxout, p75]

HI-FI NEWS VERDICT

Sure to satisfy Denon owners keen to add streaming to their setup, the DNP-2000NE offers a lot at an agreeable price, from app control to HDMI connectivity – but thankfully the brand hasn't focused solely on functionality. Effort put into the underlying electronics reaps performance rewards, whether heard via streaming or USB. This is a fine-sounding and versatile unit that deserves broader attention.

Sound Quality: 85%

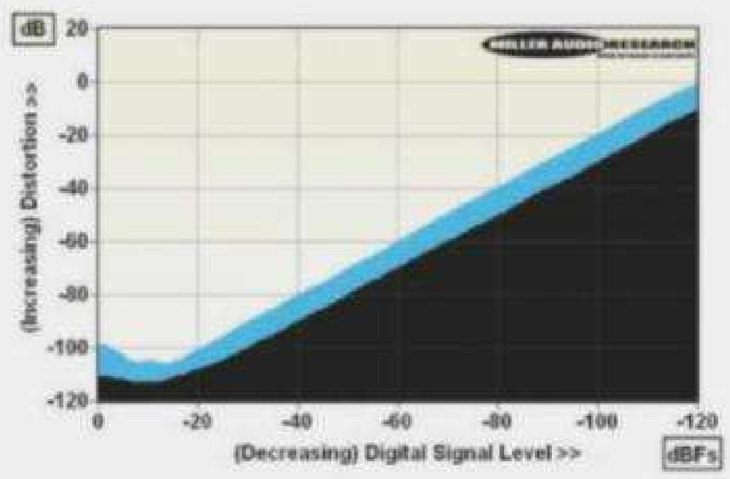
0 - - - - - - - - 100

LAB REPORT

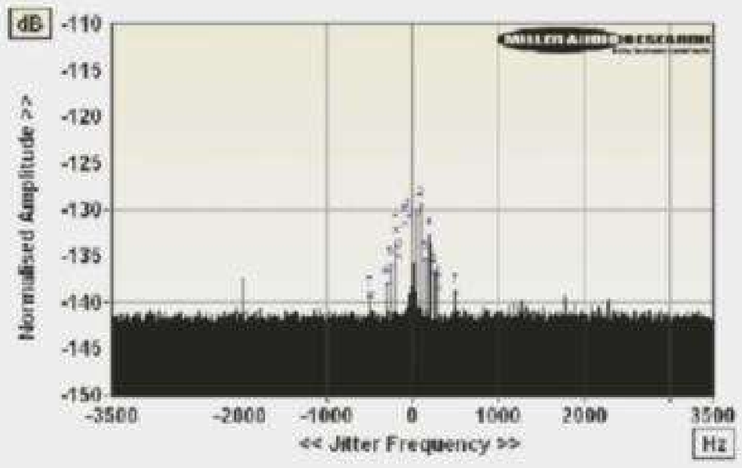
DENON DNP-2000NE

Tested via its fixed, single-ended output, the DNP-2000NE offers a 2.22V maximum output (re. 0dBFs) from a moderate 96ohm source impedance. The 110dB A-wtd S/N ratio is very generous just as its low-level linearity is impressively precise, with errors of just ±0.1dB over a 100dB dynamic range and ±0.4dB over a 110dB range. This 'clean' performance is testament not only to Denon's analogue stage, but also to its choice of ES9018K2M DACs, a pair employed in differential fashion per channel. All ESS DACs include proprietary jitter suppression, realised here in figures of <30psec for all sample rates. In fact the ±50Hz, ±100Hz, *etc*, sidebands resolved in the jitter test [see Graph 2, below] are indistinguishable from a very low level PSU modulation. At higher levels (~500psec) this type of jitter typically has a warming or fattening influence over low bass detail, but is unlikely to exert any influence here.

Distortion is also as low as might be expected from pairs of ES9018 DACs – as low as 0.00025% over the top 30dB of its range through the midrange and 0.0005% at 20kHz [see Graph 1]. A regular feature of Denon's 'digital' products is its 'Ultra AL32 processing' which, not unlike Ed Meitner's MDAT2 adaptive filter algorithm [*HFN* Sep '21], switches coefficients depending on whether the music is transient-rich or inherently steady-state. In the latter case its response is flat to within ±0.1dB to 20kHz but with dynamic signals a slow roll-off linear filter type bites above ~17kHz to yield –2.6dB/20kHz (all 44.1/48kHz data). With 96kHz files it reaches –4.0dB/45kHz, and with 192kHz data it rolls away to –12.3dB/90kHz. As a result, the DNP-2000NE does not behave like a 'plain vanilla' ES9018 implementation. **PM**



ABOVE: Distortion vs. 48kHz/24-bit digital signal level over a 120dB dynamic range (black, 1kHz; blue, 20kHz)



ABOVE: High resolution 48kHz/24-bit jitter spectra with markers showing minor PSU-induced sidebands

HI-FI NEWS SPECIFICATIONS

Maximum output level / Impedance	2.22Vrms / 96ohm
A-wtd S/N ratio (S/PDIF / Network)	109.9dB / 109.8dB
Distortion (1kHz, 0dBFs/–30dBFs)	0.0003% / 0.0006%
Distortion & Noise (20kHz, 0dBFs/–30dBFs)	0.0013% / 0.0007%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0 to –0.1dB/–4.0dB/–12dB
Digital jitter (48kHz / 96kHz)	30psec / 15psec
Resolution (1kHz @ –100dBFs/–110dBFs)	±0.1dB / ±0.4dB
Power consumption	21W (2W standby)
Dimensions (WHD) / **Weight**	434x107x374mm / 9.7kg

Tchaikovsky
The Nutcracker

Christmas entertainment, orchestral showpiece or a human drama? This farewell to the stage is all three, says **Peter Quantrill**, as he sits down with boxes of Sugar-Plum Fairies

How did *Nutcracker* ever catch on? Following the premiere in St Petersburg in December 1892, one critic delivered the *coup de grace*. 'First of all, *Nutcracker* can in no event be called a ballet. It does not comply with even one of the demands made of a ballet. Ballet, as a basic genre of art, is mimed drama and consequently must contain all the elements of normal drama.'

'On the other hand', the critic continued, 'there must be a place in ballet for dances, made up of the entire essence of classical choreography. There is nothing of this in *Nutcracker*. There is not even a subject'.

TOY STORY

Too harsh? The plot in a nutshell is adapted from a tale by ETA Hoffmann. A Christmas party is interrupted by Drosselmayer, the godfather of the Silberhaus children. He brings gifts including a nutcracker to which young Clara is immediately attracted. After bedtime, Clara creeps back downstairs to check on the nutcracker, which has been broken. The room is invaded by mice and a battle ensues between the mice

Watch out for the Mouse-King: the Bolshoi Ballet's super-traditional staging, on Bel Air Classiques

PHOTO: ROH/ALASTAIR MUIR

and the toys, which have come alive. When the Mouse-King is about to defeat the nutcracker in single combat, Clara saves him by throwing her slipper at the Mouse-King.

The Christmas tree suddenly grows to enormous dimensions, the nutcracker turns into a handsome prince and thanks Clara for her deed. They pass beneath the branches of the Christmas tree into a snowy landscape and on to Confiturembourg, the Land of Sweets, where the nutcracker's safe return is cause for the *divertissement*, which takes up most of the work's second act.

> 'These hi-fi spectaculars are faithful to the score'

Peter Wright's version of Marius Petipa's choreography for the Royal Ballet, on Opus Arte

PHOTO: D. YUSUPOV

The story, while quaint, has obvious structural defects. An action-packed Act 1 is followed by an expansive set of tableaux for Act 2. The choreographer Marius Petipa was well aware of this when he became mysteriously indisposed halfway through rehearsals, and his colleague Lev Ivanov took charge. Initially fired by the project, Tchaikovsky also began to have misgivings, though he continued to fill Petipa's exacting brief to the quaver. 'Coffee. Arabian, the Kingdom of Yemen. Coffee Mocha. Eastern Dance from 24 to 32 bars of cloying and bewitching music.'

Yet *Nutcracker* did catch on, not just as Tchaikovsky's swansong (pun intended) to the dramatic medium that suited him best, but as a gateway to the world of classical music as well as ballet for children and adults alike. Purely as a score, Act 1's transformation from domestic parlour to fir-forest deep in snow is one of the great romantic moments. The battle scene keeps up a prolonged, sparky animation with at least as much brilliance as any of the symphonic scherzos and finales.

SWEET SOUNDS

The endless variety of the orchestration is capped by the introduction of the celesta for the Dance of the Sugar-Plum Fairy. This was an entirely new instrument (percussion with a keyboard) at the time, which Tchaikovsky had specially imported, and then smuggled into the theatre under wraps so that no other composer would steal the sound of glitter and ice and magic from him.

The protean identity of *Nutcracker* has enabled it to take on entirely separate costumes and forms. What viewers want from a fully staged ballet is entirely different to the criteria by which a complete version of the score, as an experience purely for the ears, will be judged. The Suite from the ballet has earned a separate identity in its own right, both as an orchestral selection of highlights, and in various piano arrangements.

Purely as a demonstration of conducting sorcery, for example, Sergiu Celibidache's late-late crawl through the Suite, exquisitely played by the Munich Philharmonic (EMI/Warner) exerts magnetic fascination. At the other end of

the tempo envelope, the pianism of Martha Argerich is never more mercurially bewitching than in her duet recording (DG) of the suite in company with Nicolas Economou. For a more central recommendation in the Suite, the Berlin Philharmonic under Mstislav Rostropovich (also DG) brings a snappy, articulate brilliance to the dance rhythms not matched by heavier and more reverential Russian versions from Mravinsky and Svetlanov.

In the 1950s, the new medium of LP proved ideal for a complete recording of the score, comfortably fitting on two records. In a separate but related development, George Balanchine created a new staging of the ballet, premiered in 1954, which simultaneously created a new North American holiday tradition and ensured the financial stability of the New York City Ballet. Record labels saw the potential for a hit.

First out of the blocks was Antal Doráti, both in mono and then

PHOTO: PAUL KOLNIK

Magic tricks and transformations in a well-grooved touring staging by the Ballet of the National Opera of Ukraine

stereo with the Minneapolis SO. It was hard-driven, with tempi that would challenge the most athletic of dancers, but was calculated to spring from the speakers in Mercury's Living Presence sound. Decca soon followed with the tech-savvy Ernest Ansermet in Geneva, making the most of their own proprietorial 'ffrr' set-up. Their modern counterparts are Gergiev with his Kirov orchestra on Philips – the first to squeeze the whole ballet on a single CD – and Dudamel in Los Angeles, wrapping the listener in blizzards of tinsel and snow with Dolby Atmos surround sound.

These hi-fi spectaculars are faithful to the dots of the score, less to its spirit as music for dancing. Jurowski, Pletnev and Previn [see

PHOTO: BEL AIR CLASSIQUES

Snow flurry city: the corps of the New York City Ballet in Balanchine's much-loved version, on the C major label

Essential Recordings below] are more balletically sprung, building towards an apotheosis with the emotional charge of the *Pathétique* or *Eugene Onegin*. Especially under Previn and Jurowski, the lugubrious clarinet of the Arabian dance taps into the melancholy vein of the Fifth Symphony, where many other versions conjure a generically pseudo-eastern moodiness.

SILVER SCREEN

For the full experience of *Nutcracker* as Tchaikovsky and Petipa conceived it, a film version will always surprise inveterate listeners to the score with the ever-ingeniously close match of music to movement. Petipa's choreography is best experienced in the longstanding but continually updated version for the Royal Ballet by Peter Wright (Opus Arte), though there is no shortage of superficially more 'authentic' versions from Russia including Gergiev and the Kirov *in situ* (Warner Classics).

Dmitri Tcherniakov plays fast and very loose with the scenario in his Paris staging, but his reuniting of the ballet with its original companion opera, *Iolanta*, fuses the two into a compelling new tragedy. The Salzburg Marionette Theatre presents a surprisingly un-wooden staging to the accompaniment of Ansermet's recording (Belvedere).

Once you have seen George Balanchine's staging, however, it's hard to go back to Russian dolls. Recognisably modern in outlook, yet honouring at every stage the winter magic of the original scenario, the New York City Ballet presents the most human and heart-warming *Nutcracker* to be found on film.

ESSENTIAL RECORDINGS

State Academic SO of Russia/Jurowski
Pentatone PTC5186761 (2CDs)
Pick of the bunch on CD: expansive engineering holds the old-school Russian grandeur of the playing in perfect focus.

Russian National Orchestra/Pletnev
Ondine ODE1180-2D (2CDs)
A quirky alternative: Pletnev never drives the tempi too hard and opens up the score's countless felicities and novelties.

LSO/Previn (released 2016)
EMI/Warner 5419734650/9029592391 (CD/LP)
An analogue classic, with the '70s LSO brass and EMI's Abbey Road engineering sounding even finer on the new LP remastering.

New York City Ballet/Otranto
C major 738704/738608 (Blu-ray/DVD)
Balanchine's hit version for NYCB transfers to the screen as a Christmas treat for all the family, beautifully filmed and played.

Royal Ballet/Gruzin
Opus Arte OABD7229D/OA1252D (Blu-ray/DVD)
The best of several modern Royal Ballet versions. Lauren Cuthbertson's immaculate Sugar-Plum Fairy plus exciting pit work.

Opera de Paris/Altinoglu
Bel Air BAC445/BAC145 (Blu-ray/DVD)
The left-field choice, but also the 'authentic' one, paired with *Iolanta* as at the premiere, in Dmitri Tcherniakov's radical staging.

Sly And The Family... *Anthology*

This album showcases the rule-breaking, genre-busting band in their prime, says **Steve Sutherland**, as he soaks up the sounds of its 20 songs, reissued on 180g vinyl

STEVE SUTHERLAND

Steve edited NME from 1992-2000, the Britpop years, launching NME.com and reviving the NME Awards. Previously he was Assistant Editor on Melody Maker. Among his many adventures he has been physically threatened by Axl Rose, hung out awhile with Jerry Garcia and had a drink or two with Keith Richards...

'My friends and I, we were suit-and-tie guys...' This is Darryl L Lewis speaking. Don't worry, it's unlikely you'll have heard of Darryl. He's one of the people that musician and record producer Questlove invited into the edit suite when assembling the footage for *Summer Of Soul*, the film he created in 2021 documenting the 1969 Harlem Cultural Festival, which took place on six Sundays between June the 29th and August the 24th at Mount Morris Park (now Marcus Garvey Park) in Harlem, NYC.

MINISTRY OF FUN

The footage had been languishing unseen in a basement so when Darryl got to watch it, it was for the first time since he'd actually attended the event as a young teen over 50 years ago. The film is amazing, the performances never short of stunning. There's Nina Simone, The Chambers Brothers, Stevie Wonder, The Staples Singers, Mahalia Jackson, The 5th Dimension... But what's prompted Darryl's grinning suit-and-tie confession is watching the kitschy syncopated dance moves of Gladys Knights' Pips and David Ruffin.

'We couldn't sing, he chuckles, 'we couldn't do anything, but we thought we could dance, we had all the moves down...'

Brilliant as they are, though, it's neither Ms Knight nor Mr Ruffin we're here to eulogise. It's Sly And The Family Stone whose set in the *Summer Of Soul* movie is the absolute crowning glory. Historians of popular music tend to heap so many superlatives on Sly's band that it's become easy to take their place in the pantheon of greats for granted. Re-listening, thanks to the release of *Anthology*, confirms all the plaudits and then some. As another commentator in the *SOS* movie so aptly puts it: 'This is clearly a band with an evangelical sense of their church of psychedelic soul. It's the Ministry Of Fun.'

We are generally not in the habit of covering 'Best Of's in this feature but *Anthology*, first released in 1981, is such a peerless collection that it would be remiss of us not to recommend it to anyone who isn't familiar with the wondrous Family Stone, and even if you're a Sly aficionado and have all the ground-breaking, mind-blowing albums, this compilation serves as a splendid playlist of essential tracks. In fact – and I do literally mean *in fact* – there isn't a single track out of the 20 here that falls short of anywhere in the region of fantastic.

> 'These songs are full-on clarion calls for positivity'

The group (l-r): Greg Errico, Rosie Stone, Sly Stone, Cynthia Robinson, Freddie Stone, Jerry Martini, Larry Graham and (inset) label of original US release on Epic

EVERYONE'S A STAR

Whether it's the good-timey singles 'Dance To The Music', 'I Wanna Take You Higher' and 'Hot Fun In The Summertime', or the harder, funkier 'Thank You for Talkin' To Me Africa', its blueprint 'Thank You (Falettinme Be Mice Elf Agin)', or the sparse, vocoder-drenched freak out 'Don't Call Me...', these are full-on clarion calls for positivity.

Furthermore, from the heartfelt plea for generational understanding of 'Family Affair', to 'Everyday People's hymn to racial harmony ('There is a yellow one that won't/Accept the black one/That won't accept the red one/That won't accept the white one/Different strokes for different folks...') or the does-what-it-says-on-the-tin little beauties 'You Can Make It If You Try' and 'Everyone's A Star', there's nothing particularly complex in these messages. Another track's title? 'Sing A Simple Song'.

Notwithstanding the sonic and technical innovations where the feel and vibe take precedence over perfection or precision, these are grown-up nursery rhymes,

Priced £47.99, the 180g reissue of Sly And The Family Stone's *Anthology* is available online at *www.roughtrade.com*

deliberately created as la-di-da ear worms, singsongs, communal rejoicings. They neither acknowledge nor accept any musical parameters and hold no truck with prejudice of any kind.

WALK THE WALK

Sly (real name Sylvester) was a prodigious musician, brought up in the church, who landed in San Francisco to DJ during the Haight-Ashbury hippie love-in years and therefore knew what turned people on. And he walked it like he talked it. The group at its peak was multiracial and pan-sexual, comprised of Sly on pretty much everything, his brother Freddie on guitar and sister Rose on keyboards, Cynthia Robinson on keyboards, Jerry Martini on sax, Larry Graham on bass, Greg Errico on drums and all and sundry on vocals and shout-outs. In other words, a living, breathing example in the studio, on stage and on the airwaves of what others were debating and fighting over. Unity. No ifs or buts, they were a revolution.

Press shot of Sly Stone by Urve Kuusik, issued by Epic in 1969

Back to Darryl: 'When you saw a black group, what you expected to see was, generally speaking, all men, all dressed in matching suits, ready before they ever hit the stage to perform. He [the MC] introduced Sly and the first thing that happens to the audience is the feeling of apprehension because just because they introduced Sly doesn't mean he's there. It also doesn't mean he's coming out immediately... [But] as soon as everything was kickin', it was *on*!'

CIRCUS OF SOUND AND VISION

Sly And The Family Stone were one of the first groups to do what they wanted, when they wanted. No rules applied. Later, sadly, not even their own – cocaine saw to that. But in their absolute pomp there was, and never has been since, anything to touch them. Fringe jackets, pimp hats, wraparound shades, magnificent afros, beads and bells… they were a hallucinatory carnival of pride, an exotic, down-home circus of sound and vision. They made their own time and existed within it.

Another commentator on *Summer Of Soul* calls the group 'transformative'. The party had come to town and everyone was invited. The freedom party, that is. When Sly was in the house, there was, as their 1971 LP acclaimed, a riot goin' on.

As said, music writers have lauded Sly And The Family Stone for their influence on the likes of Prince, Miles Davis, Bob Marley, Michael Jackson, George Clinton, Tupac Shakur, Dr. Dre, Beyoncé, Lenny Kravitz, Frank Ocean… blimey, just about everyone who's any good. As one of the scribblers put it: 'There are two types of black music: black music before Sly Stone, and black music after Sly Stone'.

Can't argue with that but I prefer our friend Darryl's pay-off line in the movie. 'My group of guys, we were suit-and-tie guys. Then we saw Sly and we were no longer suit-and-tie guys. The change,' he says with a chuckle, 'was in effect'.

RE-RELEASE VERDICT

First released by Epic on double LP and single cassette in 1981, and featuring 20 songs from Sly And The Family Stone's late '60s/early '70s peak, the compilation album *Anthology* is now available on 180g vinyl from Netherlands-based audiophile label Music On Vinyl [MOVLP3394C]. Retaining the original artwork and tracklisting, this limited edition reissue of 3000 individually numbered copies comes with a gatefold sleeve for its two pink-coloured vinyl LPs. *HFN*

Sound Quality: 90%

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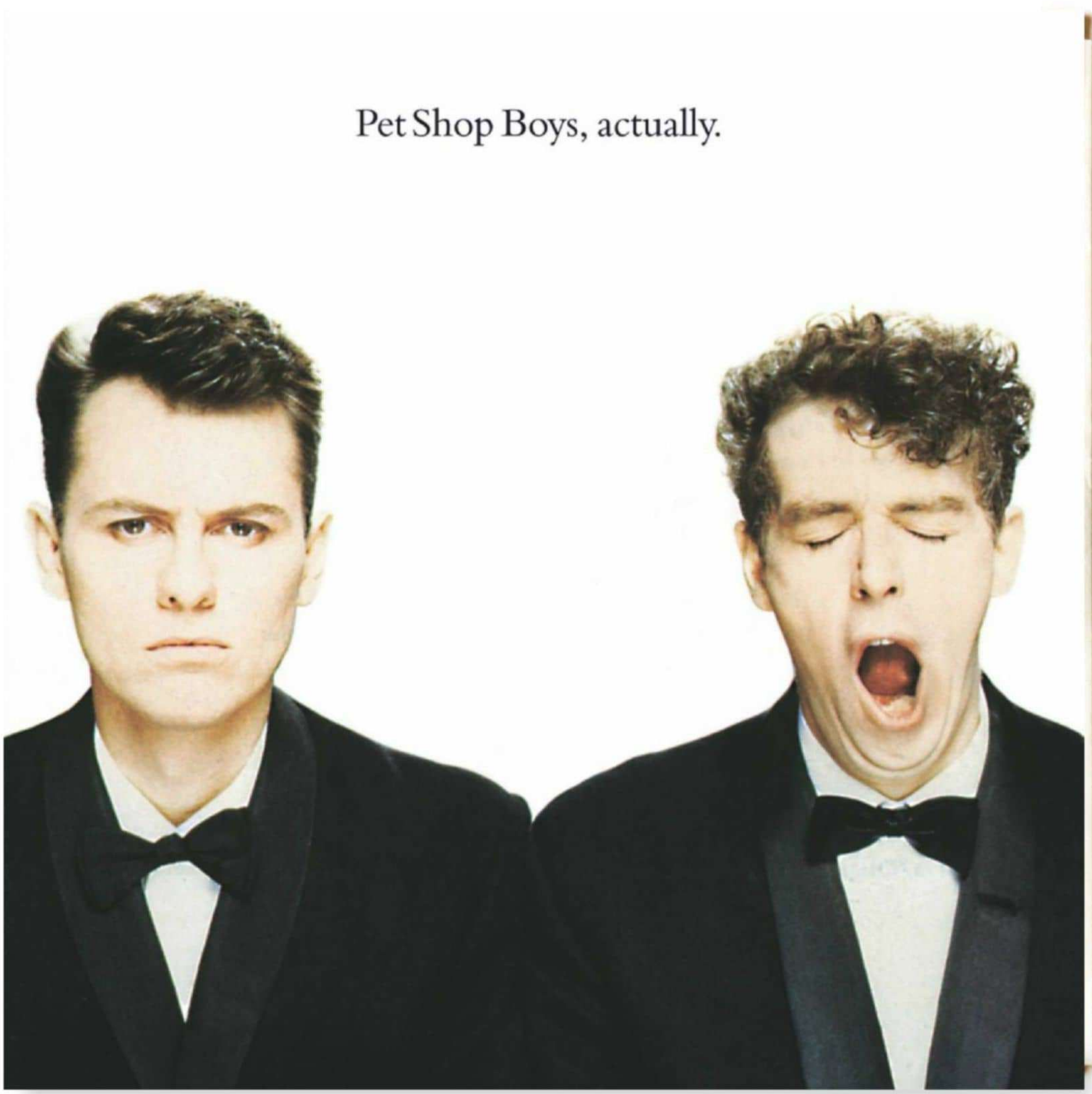

Pet Shop Boys *Actually*

Arriving just a year after their 1986 debut *Please*, the British electro-pop duo's second album solidified their chart-topping status, thanks to a bigger production influenced by ZZ Top, a guest appearance from Dusty Springfield, and some classic tunes...

Words: **Johnny Sharp**

Side 1 of the original LP on the Parlophone label

Chris Lowe (left) and Neil Tennant in a press shot issued by EMI-Manhattan Records in 1988

Ad for the hit single 'What Have I Done To Deserve This' with Dusty Springfield

Lowe and Tennant in a promo pic from 1987

The duo pose for the camera in 1995

It's a malaise almost as old as pop music itself. Second album syndrome – the crisis faced by an artist writing the follow-up to a hit debut LP, when they realise that after having had their whole lives to come up with the contents of their first offering to the world, they now only have a few months to rustle up a fresh batch of equally strong material for the follow-up.

That's not such a problem, though, if you have a sufficiently large stockpile of great songs before you hit the big time that there's enough top-notch material to fill two albums. Noel Gallagher suggested that was the case with Oasis, hence the strength of their first two offerings. And it helps explain how the Pet Shop Boys followed up their 1986 debut *Please* with an even more striking and polished set of dance-pop gems on 1987's *Actually*. It would turn out to be the duo's defining release, the four hit singles it spawned remaining among the band's best-loved compositions from a career spanning nearly 40 years.

OPPORTUNITY KNOCKS

As far back as 1982, Neil Tennant and Chris Lowe had been working regularly on demos in a small Camden studio, having met the year before in a King's Road hi-fi shop where the former bought a Korg synthesiser and they bonded over a shared love of disco and synth pop. While Tennant, by that point a journalist with pop mag *Smash Hits*, was in New York interviewing Sting, he sought out cult disco producer Bobby 'O' Orlando, who saw something in their demos and ended up producing 11 tracks.

Apart from making brief ripples on the US club scene, little happened to the subsequent release of 'West End Girls' on Orlando's Bobcat label or reissues on CBS and Epic. It wasn't until they parted company with Orlando and hired British manager Tom Watkins to oversee their career that their prospects began to improve, as a deal with Parlophone was inked in 1985. Yet even then they saw 'Opportunities (Let's Make Lots Of Money)' flop before a remix of 'West End Girls' finally clinched the duo their first No 1.

During that period they had been writing continually, and they carried on after that breakthrough hit and the release of the *Please* LP – helped by the cancellation of a proposed tour which left them with was nothing better to do than return to the studio and focus on songwriting.

One advantage the pair also had from the start was the self-confidence and bloody mindedness to stay true to themselves, rather than accede to the demands of their label and management. 'We were always under pressure at the start, from EMI and Tom, to be more... nice', Tennant told Chris Heath in his book *Literally*. 'We deliberately took care to be the opposite.'

'People have got to like it or lump it, really', said Lowe. 'If we were to contrive looking [like] happy, good-looking pop stars, it wouldn't work.'

By the time the Pet Shop Boys made *Actually*, they'd proved to be successful on their own terms via hits like the re-released 'Opportunities' and 'Suburbia', elegant yet fun-loving pop with a pronounced British accent and a strong streak of dry humour. Therefore, they pretty much had their own blank canvas on which to paint this second long-form statement to the world.

> 'The duo met in a hi-fi shop on London's King's Rd'

OVER THE TOP

The first single from the album would be the boldest, broadest slice of dance pop they'd yet come up with, and it still sounds *huge* coming out of your speakers today.

'It's A Sin' was tailor-made that way, as Neil Tennant recalled on the sleevenotes of the 2001 reissue.

CHORD

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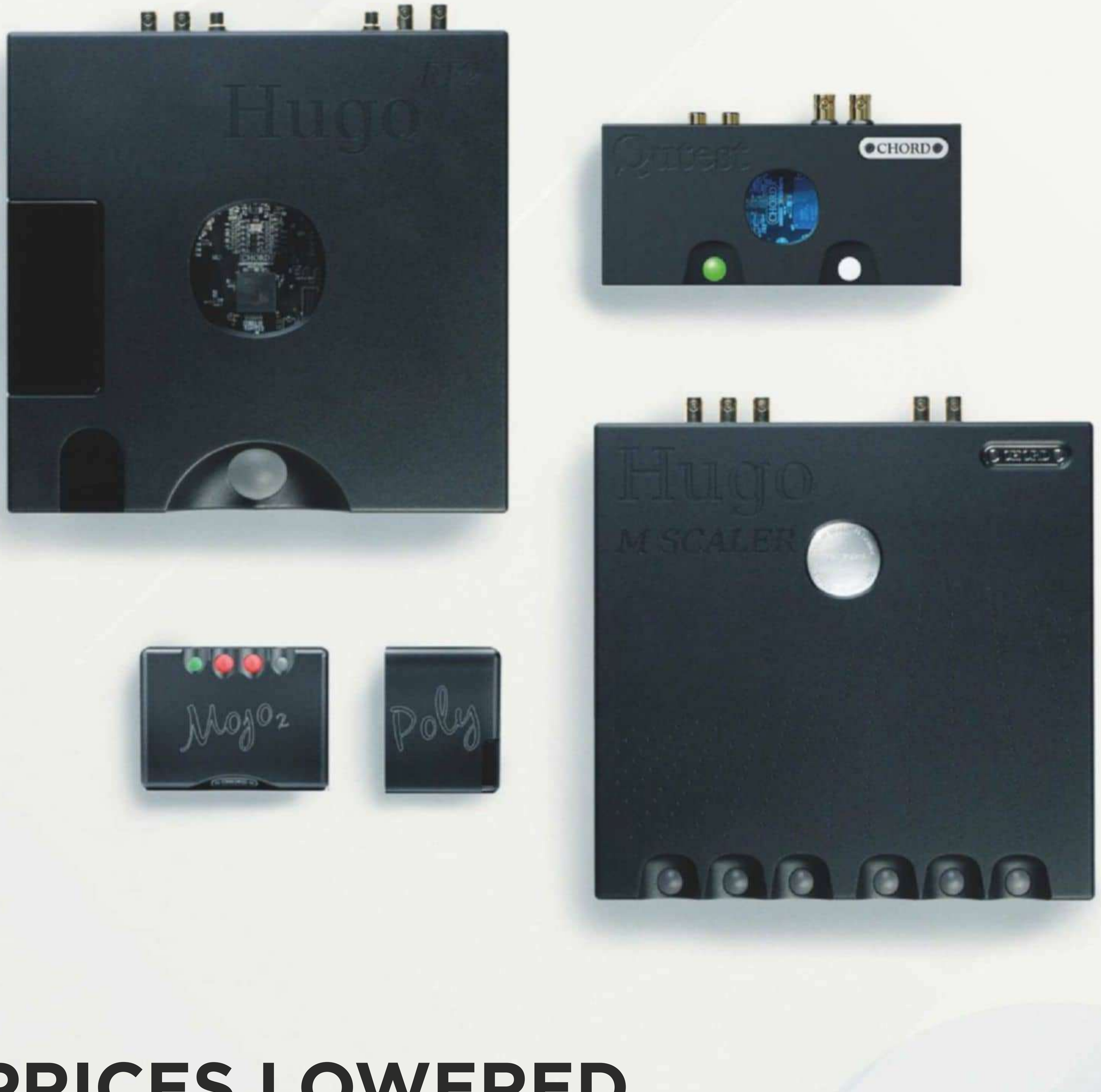

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PRODUCTION NOTES

The album came together during initial sessions in London studios Advision and Sarm West. Lowe told of how they were afforded time to experiment or 'faff a lot'. The boys called on various studio maestros including *Please* producer Stephen Hague, but the bulk of the album was overseen by Julian Mendelsohn, who had first appeared on the band's radar when he produced a remixed version of early single 'Suburbia'.

He told *Classic Pop* magazine in 2017 how he and Tennant did 'a lot of the hands-on work', while Lowe, ever the man of few words, listened and occasionally made a suggestion. 'He'd get up, he'd have a keyboard and he'd fiddle about for a couple of minutes… then he'd go back to the couch. And it was always a winner.'

And while Mendelsohn had to insist on Tennant doing more takes to improve vocals the singer was already happy with, the recording of Dusty Springfield's contribution was the opposite. The grand dame was very particular about how she wanted her vocal to sound, and she insisted on recording take after take before she was happy with them.

It was during the making of a video for 'What Have I Done To Deserve This' that the classic cover photo was taken. The shot of the duo, in dinner jackets and dickie bows, with Tennant caught in an

almighty yawn, was taken by Cindy Palmano, and it was about to be used for the cover of Tennant's alma mater *Smash Hits* before the band requested, the day before it was due to go to press, that it be held back for the *Actually* album.

'It was sort of uncompromising and funny at the same time', Neil Tennant later noted. A lot like the men it depicted, in fact.

'We decided to make the whole record gargantuanly Catholic and over-the-top. We went to Brompton Oratory with Julian Mendelsohn and recorded the ambience. You can hear it in the background of the "father forgive me…" section.'

They also threw in such touches as a thunderclap and a NASA countdown. As such, the song had come a fair way from the one that began life in Ray Roberts' Camden studio, when Lowe came up with that descending chord sequence and Tennant began playing around with the titular phrase.

'It was originally very Euro and had a different tune, very French-sounding', the singer said. Later, an incarnation by Bobby O didn't pass muster, and when the track was nominated for production by Stock Aitken Waterman for *Please*, Pete Waterman decided he wasn't a fan.

GETTING DUSTY IN HERE

Mendelsohn's production finally did the song justice. 'I was listening to a lot of ZZ Top', he told *Classic Pop* magazine in 2017. 'So I sort of sent it in that direction a little bit – the insistent heaviness of it.'

Another key track on the album features the Pet Shop Boys' first guest vocalist – one of *the* great British soul voices. And once again, it was a song that had been in development since before their debut album. 'What Have I Done To Deserve This' was always conceived as a duet, but after the song was demo'd with American session singer Allee Willis at the end of 1984 (who also wrote the 'since you went away…' passage of the song), the group's imagination was fired up when Tom Watson's assistant Nikke Slight suggested they try Dusty Springfield – whose *Dusty In Memphis* album is among Tennant's all-time favourites.

CAREER REVIVAL

She said 'no' to the then-unknown British duo, and after suggestions by their record company that included Tina Turner and Barbra Streisand were rejected by the band, the song didn't make it onto *Please*. Happily, though, Springfield later heard 'West End Girls' on the radio and liked it. Remembering the earlier approach from the Pet Shop Boys to duet on 'What Have I Done…', she asked her management to get back in touch.

> 'Springfield heard "West End Girls" and liked it'

Here it's worth remembering that in the mid-1980s Springfield was far from the revered name in the British pop pantheon she is now, and her career was faltering to say the least. 'When we actually met Dusty, she was living in a pay-by-day Hollywood motel', Tennant told *Classic Pop*. 'She was really at rock bottom.'

Images from a 1991 shoot by photographer Eric Watson used on the inner sleeves of the band's 2LP album *Discography*

Tennant and Lowe pose with Dusty Springfield in a promo shot for the 1989 movie *Scandal*

The exterior of Sarm West studios in West London

Lowe and Tennant in 1987, the year in which *Actually* was released

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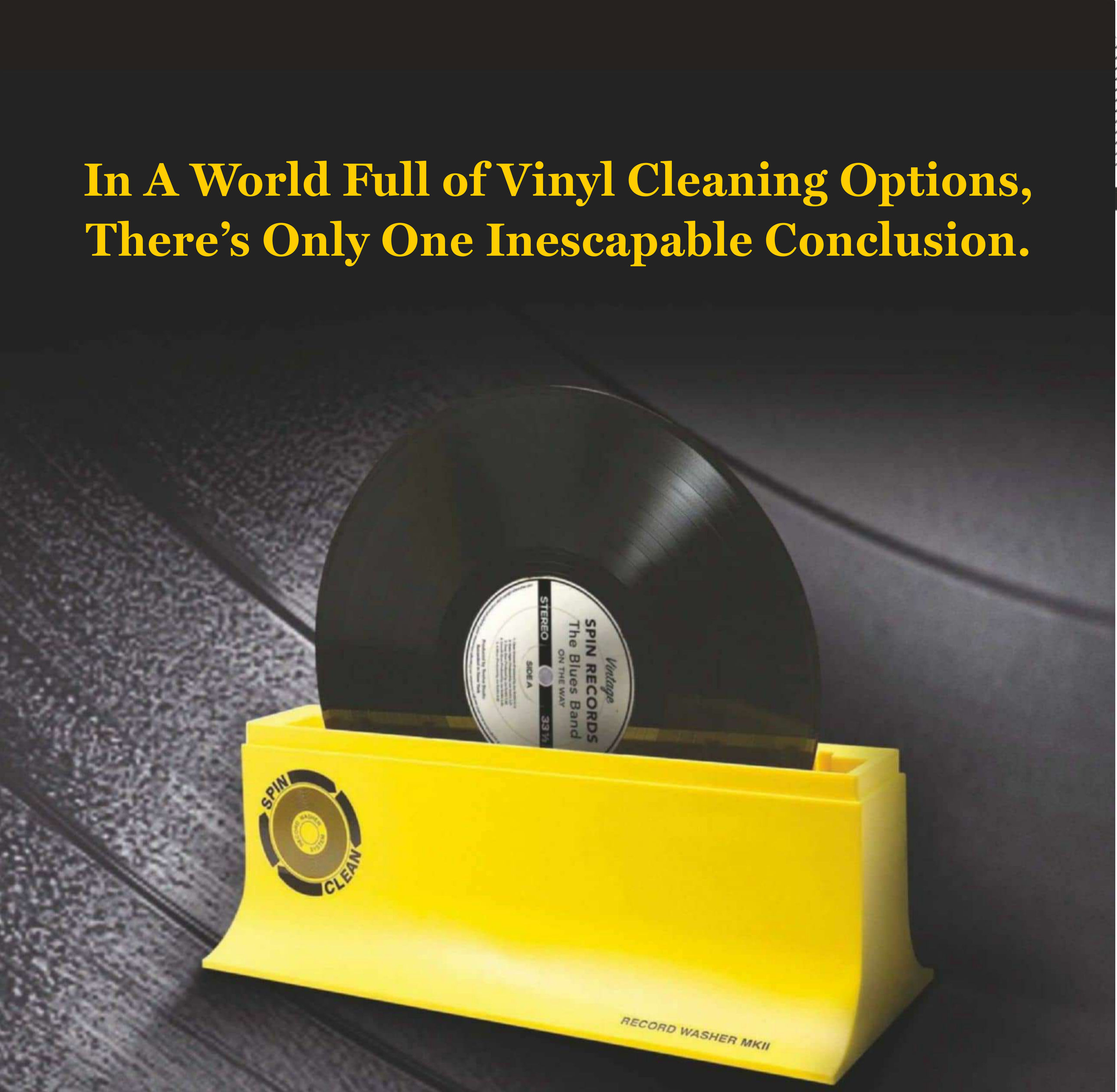

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Lowe and Tennant in 1999, the year they released their album *Nightlife* and (below) in a shot promoting *Introspective* from 1988

Yet the pair were thrilled to have one of their musical heroes singing on their record, and when it became the second single from the *Actually* album to hit the charts, it helped revive Dusty Springfield's career.

HEART BEAT

That track's blend of sung-spoken, English-accented narrative and melodically enhanced dance pop is classic Pet Shop Boys. It's a combination found elsewhere on this album, not least on the opening track 'One More Chance' and its evocation of a lonely urban landscape where 'strangers in overcoats hurry on home'; the chalk-dry electro takedown of consumer culture on 'Shopping'; and the faux-haughty meta-pop of 'Hit Music'.

There's something undeniably warmer about the other two hit singles this album spawned, though, even when 'Rent' creates a sense of melancholy-laced romantic devotion in a yearning torch song paean. And once again, this wasn't its first go around the Pet Shop Boys' songwriting fair, having originally been penned as a Hi-NRG disco number. Andy Richards, the group's keyboard programmer and engineer, had the idea of slowing it down, with captivating results.

> "'Heart' is one of their more conventional pop moments'

While Tennant and Lowe are often regarded as arch-ironists, they deal in emotional resonance as successfully as any great pop songwriters, and 'Heart' would give them *Actually*'s second No 1 single when it followed non-album cover 'Always On My Mind' to the top 40 summit in early '88.

Written – you guessed it – a couple of years previously, 'Heart' is one of their more conventional pop moments, a song sufficiently un-Pet Shoppy for them to consider offering it to female singers including Hazel Dean and Madonna. But they eventually decided on it as the penultimate track on *Actually*, and it's another sublime highlight.

END OF THE LINE

The album closes with one of the great PSB deep cuts. 'Kings Cross' – a faintly dreamlike ode to those refugees from the provinces who wander around the titular London transport hub in search of solace – is a thoughtful, atmospheric ending to one of *the* great British pop long players, and acts as a snapshot of what Tennant has since described as the band's 'imperial phase'.

His tongue was in his cheek as he said that, no doubt, but that's the Pet Shop Boys: a band who have always managed to take the mick, slightly, while also being impossible not to love, actually.

Alternate Format Discography

ORIGINAL RELEASE (1987)
The vinyl pressing of *Actually* [PCSD 104] that did most of the unit-shifting when the album was first released (CD had a way to go before it would take over as the dominant format, of course) is generally held in high regard by fans. And given the sheer numbers in which it sold back then, it's not hard to find a copy in near mint condition.

A collector's item would be the Japanese release [RP28-5507], because it has the original TV show version of 'Always On My Mind' thrown in as the A-side of a bonus 7in, with a dub version of 'Heart' on the B-side. For a long time it was a *bona fide* Pet Shop Boys rarity until it was included on *Actually / Further Listening 1987-88* [see entry below], and completists could still pick one up for around £15.

ORIGINAL CD (1987)
Mastered by Sonopress and issued in a then-standard jewel case with an eight-page booklet, this UK version [CDPCSD 104, pictured above] is deemed to have slightly stronger bass than its American equivalent [CDP 7 46972 2], with a marginally warmer sound thanks to stronger midrange. But in any case, CD buyers may wish to upgrade to the expanded edition.

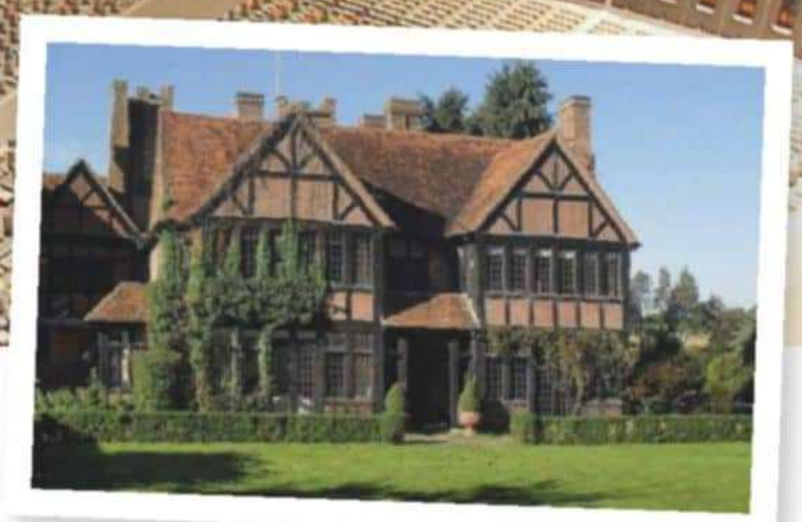
DELUXE REISSUE (2001)
The album was given a lavish repackaging [Parlophone 7243 5 30506 2 7] as part of the group's *Further Listening* series of reissues with a second disc of bonus material and extensive interviews with Tennant and Lowe on the sleeve notes – from which we have quoted in this article, in fact. *Actually / Further Listening 1987-88* also includes 14 demos, remixes and previously unreleased songs from those sessions.

Some listeners have griped that the remastering by Metropolis suffers from the lack of subtlety associated with the 'Loudness Wars' era in which it emerged. These 'wars' saw engineers applying greater compression and gain

to recordings, but this release sounds pretty tidy to these ears.

CD REMASTER (2018)
The album appeared again on CD in 2018 [Parlophone 0190295826222], this time using a new remaster by Tim Young, also of Metropolis, which was primarily made for the 180g vinyl reissue [see entry below]. It's widely viewed as the best representation of the album yet heard, and in these curiously CD-phobic times you can pick a copy up for little more than a tenner.

AUDIOPHILE VINYL (2018)
Reissued in the US and Europe on 180g vinyl [Parlophone 0190295832612] this handsome edition of *Actually* boasts a 'brand-new 2018 remaster of the original album'. Again it was by Metropolis, whose overhaul of the sound on the 2001 CD didn't hit the spot for everyone, but it received a resounding thumbs up from PSB fans, for whom it had never sounded so bright and clear on the bigger format.



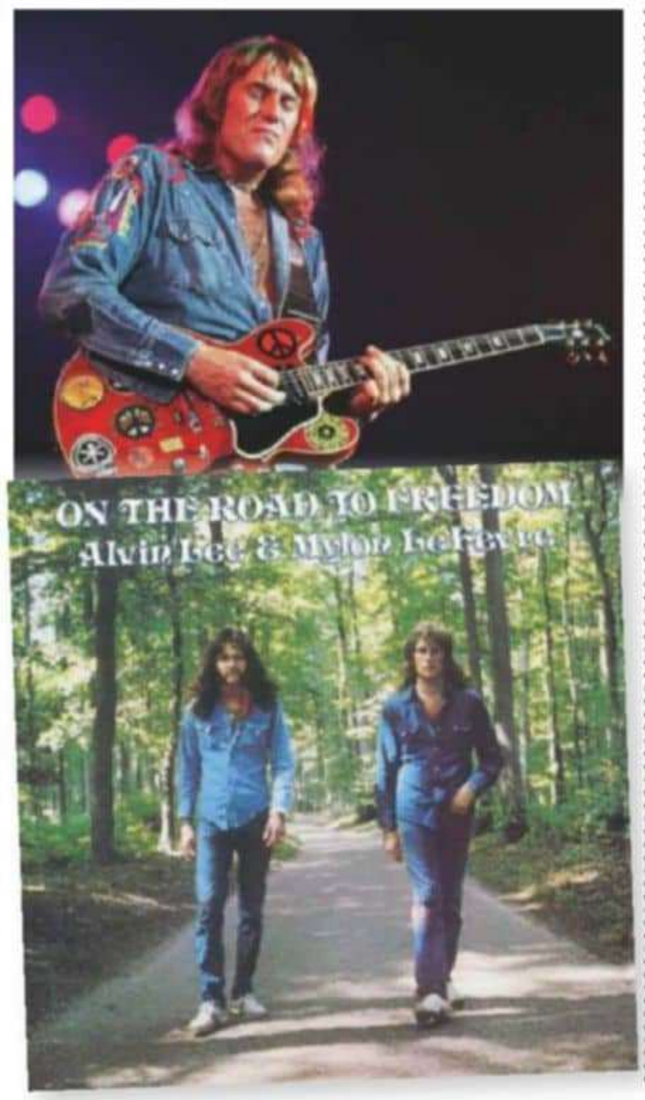
Hook End Studio

It was an historic house with a rock 'n' roll heritage, its elegant oak panels reverberating with the sounds of Morrissey, Pink Floyd and The Cure. **Steve Sutherland** has the story...

What is it with Jacks? Of all the folks in all the world, the J-men seem more prone than most to behaviour befitting the scallywag and scoundrel. Was it Brian The Ripper? Nope, it was Jack. When the gals in Ray Charles' chorus wanted that ne-er do-well man out of their hair, guess who it was they told to hit the road? Yup, Jack. When The Rolling Stones canned the dopey psychedelia and got their funk back on, who was it led them on a merry dance back to the dark side? Jumpin' Jim? Jumpin' Jeremy? Nope, it was Jumpin' Jack who had the Flash.

Anyway, why I'm dwelling on all this Jack sh... stuff is because a Jack plays a part in the story of Hook End, which is the studio we're here to talk about. But first here's some history... You'll find Hook End Manor near Gallowstree Common, just south of Checkendon in rural South Oxfordshire. It was built in 1580 for the Bishop of Reading and subsequently somewhat haphazardly added to down the centuries. It boasts an oak-panelled dining room that conceivably dates from the 1920s, a snooker room and between 11 and 14 bedrooms as no-one seems quite sure.

View into the control room at Hook End with its SSL (Solid State Logic) desk and (inset) the Manor House in 2010



Alvin Lee on stage in 1975 and with Mylon Rae LeFevre (left) on the sleeve of *On The Road To Freedom*

ALVIN'S ACRES

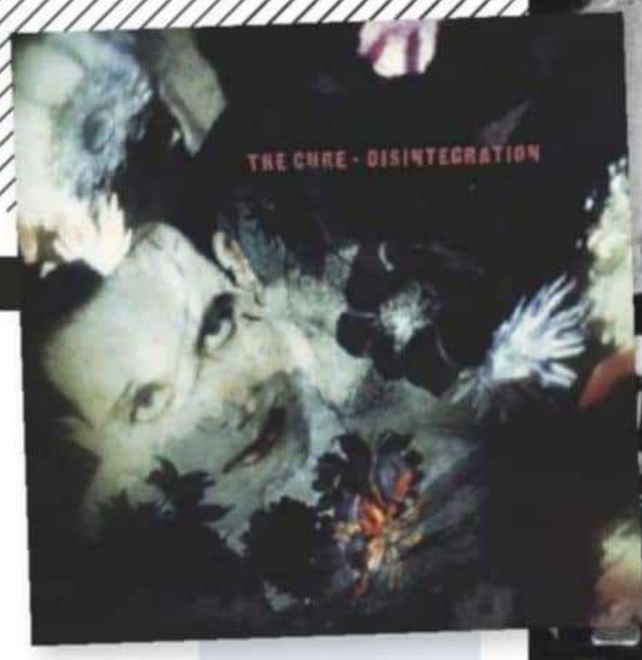
In living memory the house was owned by financier Charles Clore and then Alvin Lee, the superfast lead guitarist with Ten Years After who briefly reigned supreme as blues blustered its transformation into heavy rock. How Hook End came to be Lee's is best left for the man himself to explain: 'It's a big rock star's house that I bought as a joke... I went to see it and it

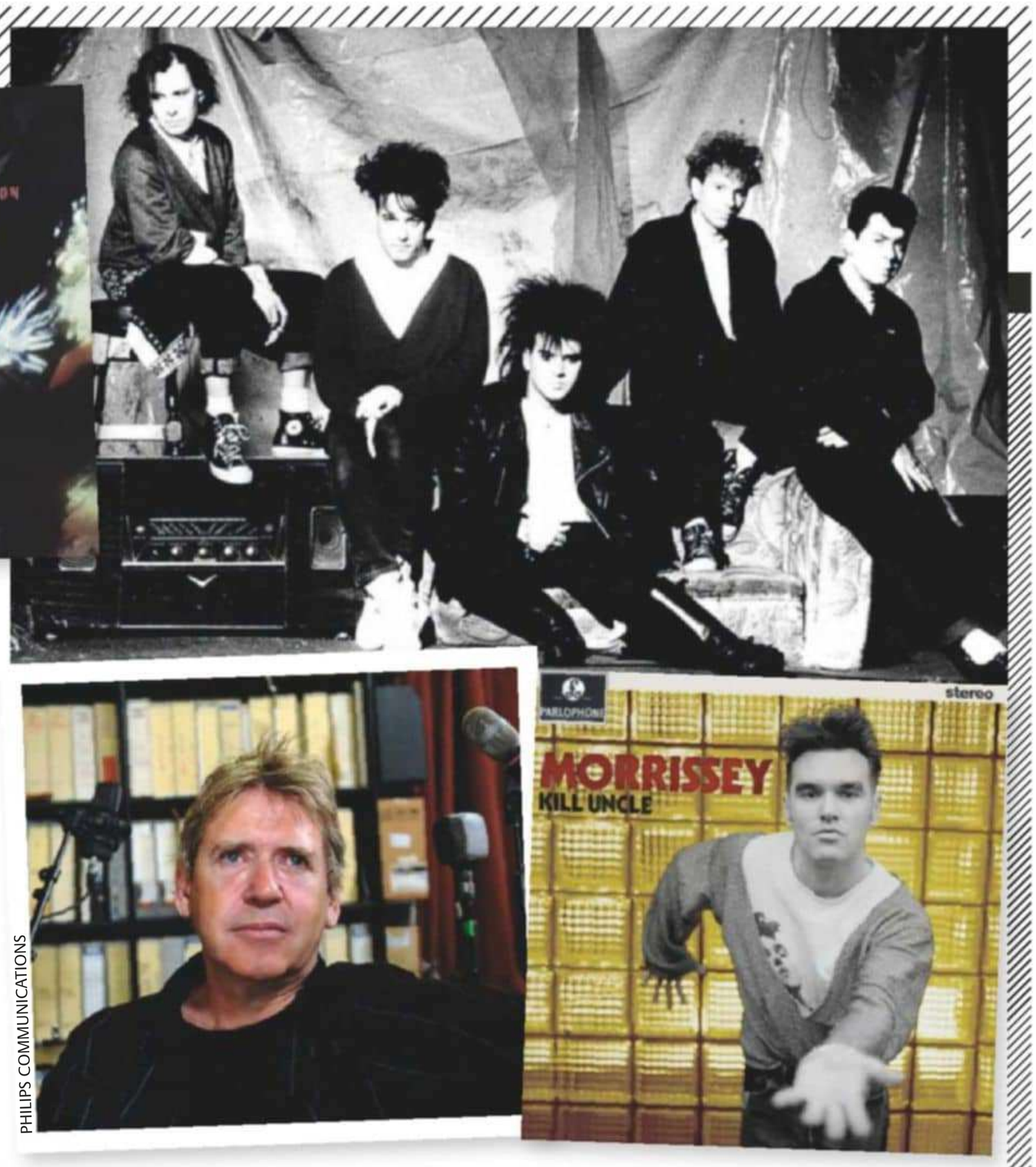
KEY RECORDING TIMELINE

1973
Alvin Lee collaborates with George Harrison to record the ex-Beatle's 'So Sad (No Love Of His Own)'

1983
Pink Floyd's *The Final Cut* is their first without band co-founder Richard Wright and the last with Roger Waters

1988
Deep Purple's *Nobody's Perfect* is released with a live jam recorded at Hook End Manor in February 1988





PAUL COX

PHILIPS COMMUNICATIONS

The Cure's *Disintegration* was recorded at Hook End in late 1988. Lol Tolhurst was sacked once the mixing began

The Cure (l-r): Porl Thompson, Robert Smith, Simon Gallup, Boris Williams and Lol Tolhurst

In 1993 Steve Lillywhite produced Morrissey's *Vauxhall And I* at Hook End

During 1990 and early '91 Morrissey used the studio to record *Kill Uncle*

In 1980 Dave Gilmour (left) bought the premises, using them to record *The Final Cut* (inset) and falling out with Roger Waters (right) in the process

was about a quarter of a million quid and I said I could never live in a place like that, it's so ostentatious and horrible. And then, by circumstance, I came into some money about a month later and my accountant said, "Well, you've gotta spend it or you'll have to pay tax". So I bought this stupid f***ing house with acres and acres and fields and stables and barns and milking sheds… and I thought, "F***ing hell". I had two full-time gardeners, a live-in housekeeper and maintenance men... It cost me five hundred quid a week to keep running even when I wasn't there'.

THAMES VALLEY GANG

When he was there Lee made use of those milking sheds, converting them into Space Studios which he used to record his album *On The Road To Freedom* in 1973. It was a collaboration with Mylon Rae LeFevre, an American Christian singer, which Lee described as 'Just an LP recorded at home with some neighbours'. Those neighbours just happened to include George Harrison, Ron Wood, Mick Jagger and Mick Fleetwood. Oh, and Steve Winwood, Jim Capaldi and Rebop Kwaku Baah of Traffic, ace session keyboard player Tim Hinkley, and Boz Burrell, who played bass with Bad Company. This posse became known as The Thames Valley Gang.

Lee sold Hook End to Dave Gilmour of Pink Floyd in 1980. Gilmour upgraded the studio, refurbished parts of the house and began work on the band's 12th LP, *The Final Cut*. Things did not go well. The onset of the Falklands war convinced the Floyd's main songwriter Roger Waters that the album should reflect his disgust.

'*The Final Cut* was about how, with the introduction of the Welfare State, we felt we were moving forward into something resembling a liberal country where we would all look after one another', he said. 'But I'd seen all that chiselled away, and I'd seen a return to an almost Dickensian society under Margaret Thatcher. I felt that the British government should have pursued diplomatic avenues, rather than steaming in the moment that task force arrived in the South Atlantic.'

Gilmour was unhappy with all the politicising and didn't think the songs were up to scratch. Cue a bunch of arguments that saw the two work separately, refusing to see eye-to-eye. Gilmour's name was erased from the production credits and Waters said *The Final Cut* was 'absolute misery to make'. *Melody Maker* called it 'a milestone in the history of awfulness' and Waters never worked with the Floyd again. Meanwhile, the band's inflatable pig, used to promote their *Animals* album, was stored in one of the outbuildings.

OUTSIDE BET

In 1987 Gilmour sold Hook End on to West Side Productions, the company name adopted by production partners Clive Langer and Alan Winstanley. They rechristened it Outside and one of their first major clients were The

HARRY BORDEN

1994
Morrissey books time in the summer of 1993 to make *Vauxhall And I*. It hits No 1 on release the following year

2003
It's another No 1 for Stereophonics who record parts of *You Gotta Go There To Come Back* at Hook End

2006
The Charlatans are rewarded with a Top 10 hit after spending mid-to-late 2005 recording the album *Simpatico*

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Cure who recorded their eighth LP, *Disintegration*, there between November 1988 and February '89. Again, this was not a happy session. Robert Smith was turning 30, having a crisis and, by his own admission, necking lots of LSD. He withdrew from the group, writing on his own and ignoring the others, one of whom, founder member and drummer Lol Tolhurst, was deep in the throes of a serious problem with alcohol. When the record came to mixing, Tolhurst was fired.

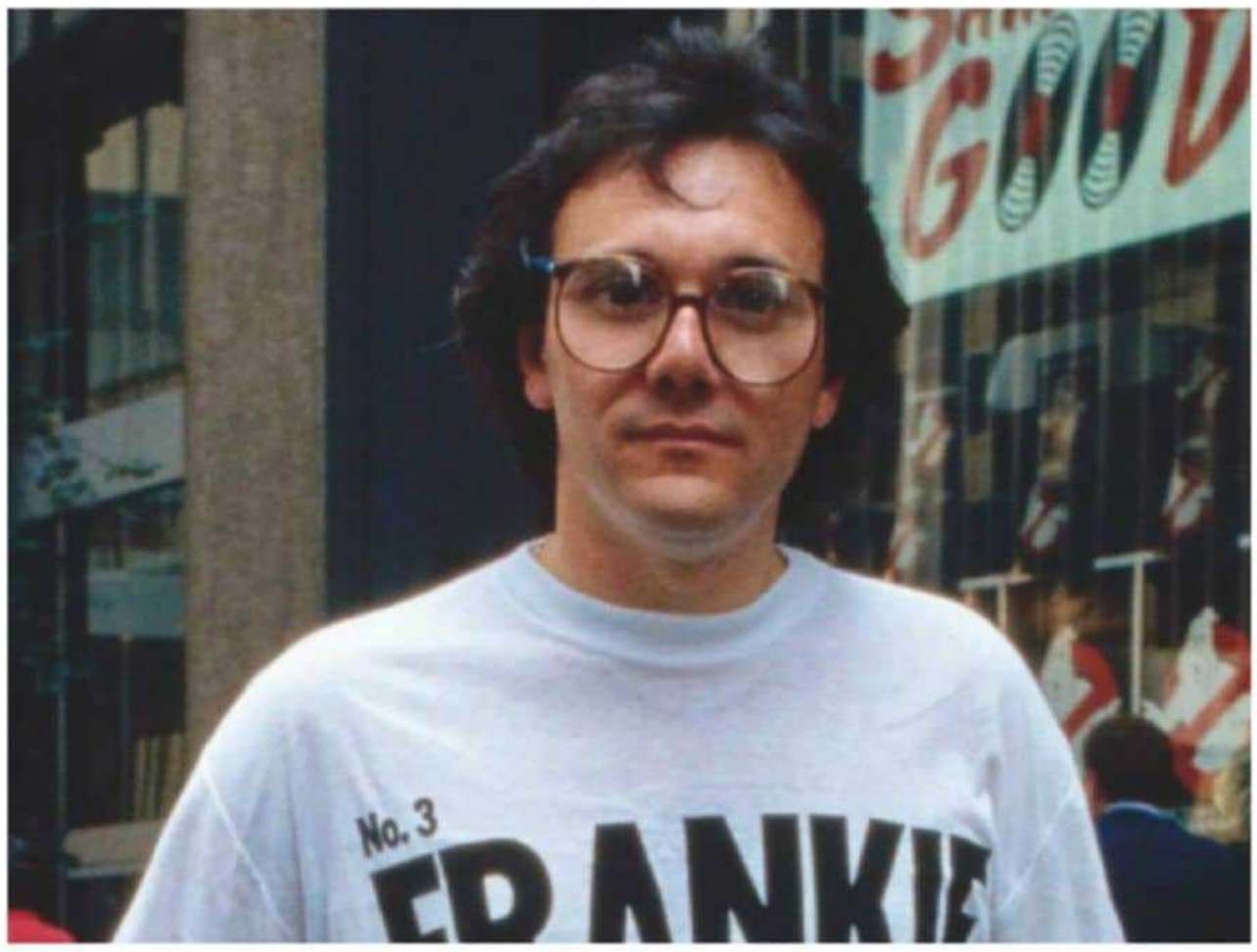
TO THE MANOR BORN

Another Hook End client was Morrissey who recorded his *Kill Uncle* LP there during late 1990/early '91 with Langer and Winstanley producing. 'He was the only person who could really afford it', says Langer. 'He fired us on the morning of the first session but I took him down the pub for a while and when we got back, Alan and the band had recorded a great backing track, so he reinstated us.'

Moz returned to Hook End two years later to do his album *Vauxhall And I*, this time with producer Steve Lillywhite in tow. Others who made use of the facilities were Marillion for *Season's End* and *Holidays In Eden* ('89 and '91, respectively), Manic Street Preachers for *Gold Against The Soul* (1993) and Aztec Camera, who recorded *Dreamland* with Japanese composer Ryuichi Sakamoto, which was also released in 1993.

'Morrissey fired us on the morning of the first session'

In the mid-'90s Hook End was sold to Trevor Horn, he of Buggles, Yes, ABC and Frankie Goes To Hollywood fame. 'I'm probably biased but I think it's definitely the best residential recording studio in the world...' he declared at the time. 'It's really the lay-out, the size of the control room, how it feels to work in it... It's really large but it feels quite small. It means people can sleep in the corners while you're working and they won't disturb you. They can be here, they can even talk, and it won't bother you.'



Roddy Frame, singer with Aztec Camera, who used Hook End to record the band's fifth studio album *Dreamland*

Label of Side 1 of Marillion's *Seasons End*, the group's first album following the departure of vocalist Fish, and the band in 2016 (l-r) Mark Kelly, Ian Mosley, Steve Hogarth (vocals and keys), Steven Rothery and Pete Trewavas

James Dean Bradfield, lead vocalist with The Manic Street Preachers, on stage in Chicago in 1992

Trevor Horn caught on camera in 1984. He bought the studio in the mid-'90s, renaming its recording facilities Sarm Hook End

Apparently, Horn was equally taken with the house and planned to make it his family home until tragedy struck. On the 25th of June 2006, his son Aaron was practising with an air rifle, not realising his mother Jill Sinclair was close by. A pellet from the gun accidentally hit Sinclair in the neck, severing an artery and causing irreversible brain damage from hypoxia leaving only her lower brain functions and no chance for recovery. She remained in a coma for eight years until she died of cancer, aged 61.

Horn sold up Hook End in 2007 and the property fell into the hands of a businessman called Mark White who set up a production company to manage the studio, boasting 'a live room, three isolation booths, a control room and a separate machine room with an HD5 expanded Pro Tools system with the capability of 112 inputs and outputs'. The gear list also boasted a second Pro Tools HD3 system with 56 inputs and outputs while inside the control room could be found an 80-channel SSL9000 console.

EERIE EXPLORATION

The studio was refurbished but it seems little was done to the house to the extent that a decade later it became of interest to a bunch of Internet adventurers behind the Abandoned And Derelict Britain website. They visited the property and nosed around, spooked to find games of Scrabble and pool left as if half-finished, wallpaper falling off the walls, and the dining room table set for a banquet for ten.

And here, at last, is where our Jack comes in. In the basement, stacked against a wall, the web explorers found the gravestone of a young boy called 'Little Jack'. It was dated April 1909 and carried the inscription: 'Thy love to me was wonderful'. Freaked out, the interlopers fled. As for Hook End, it doesn't appear to be in use at the moment. The only source of contact we can find is an unofficial Facebook page, which stands empty.

AUDIOPHILE: VINYL

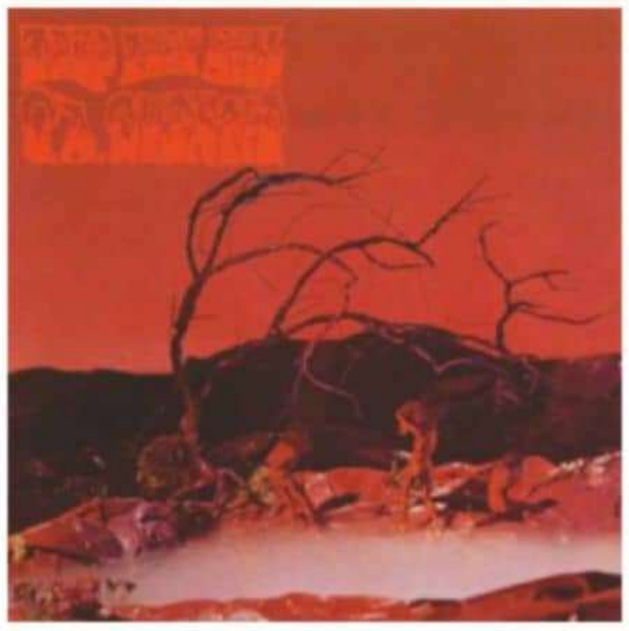
ALBERT KING
Born Under A Bad Sign

Craft/Stax CR00513 (180g vinyl)

Any sane list of the best-ever blues albums will include this masterpiece from 1967 in its Top 10. It's been reissued many times because it deserves the respect afforded Muddy Waters' *Folk Singer*. I have personal reasons for adoring this – it was playing when I lost my innocence and the title became my mantra – but a number of other virtues make it a stand-out in the genre. Like another King (B.B), Albert had a way with standards and you'll swoon at his take of 'The Very Thought Of You'. This also has a soul vibe thanks to recording mainly at Stax Studios with Booker T & The MG's and the Memphis Horns. It just may be the best-ever introduction to the blues. *KK*

Sound Quality: 90%

0 - - - - - - - - 100



C.A. QUINTET
Trip Thru Hell

Sundazed LP5631 (red vinyl)

I'm unsure whether to file this under 'Prog-rock' or 'Psychedelic', but it will charm fans of either: it's a long-lost gem from 1967/8 and it manages to tick both boxes by employing the better elements of both. In other words, it's not a typically psychedelic mess of merely fooling around for effect and calling it 'groovy'. That said, prog-wise, it's a concept album of sorts, the red vinyl signifying the fires of the destination in the title. If you're expecting anything even remotely similar to AC/DC's travelogue to that locale, look elsewhere for this is more cerebral, and thanks to some organ and brass, a bit of a find on sonic grounds. And I listened to it sober. *KK*

Sound Quality: 85%

0 - - - - - - - - 100

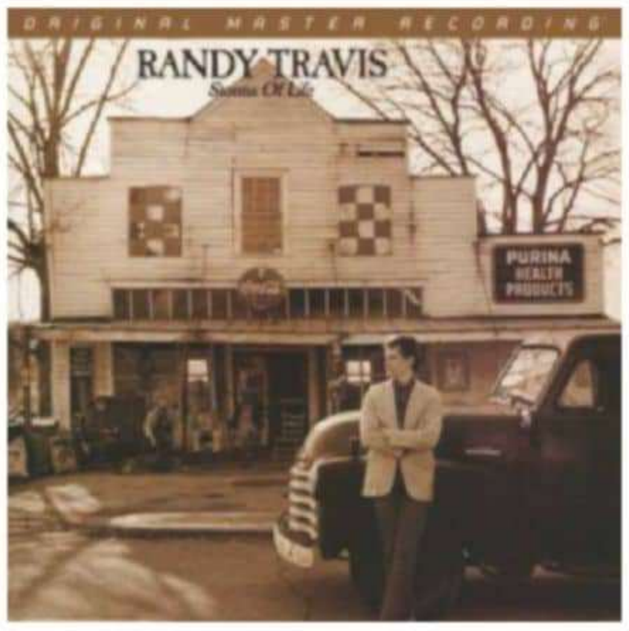
DONNY HATHAWAY
Everything Is Everything

Speakers Corner/Atco SD 33-332 (180g vinyl)

One of soul music's greatest losses and tragedies, singer/pianist Hathaway – who committed suicide at the age of 33 – left us only four studio albums, a soundtrack and a handful of posthumous in-concert releases. As this debut from 1970 is such an astounding release, one wonders where his career might have taken him. Because it arrived during the flux years when soul was heading toward disco, Las Vegas gloss and other uptown influences, it is striking for its bluesy feel, not a little gospel input and a deep jazz sensibility. Every track is memorable, but 'Thank You Master' is an epic, while 'The Ghetto' ranks right up there with Curtis Mayfield. Just buy it. *KK*

Sound Quality: 90%

0 - - - - - - - - 100



RANDY TRAVIS
Storms Of Life

Mobile Fidelity MFSV1-511

Travis's 1986 debut LP introduced us to one of the finest, most seductive voices in the history of country music. Even then he sounded a bit of a throwback to a gentler time, Travis owing more to Lefty Frizzell, George Jones and – no surprise here – Hank Williams, as this appeared at a point in the genre's history when rock music and flash held greater sway. Travis's lush baritone will benefit from a system with a peerless midband, my LS3/5As impressing with the richness of his vocals. This sold in excess of four million copies, the MoFi version demonstrating that country music can transcend the sonic boundaries of 8-track cartridges in the cab of a Ford F-150. *KK*

Sound Quality: 90%

0 - - - - - - - - 100

AUDIOPHILE: DIGITAL

CD COMPACT DISC | SA SUPERAUDIO | DVD DVD | BD BLU-RAY | VINYL | DOWNLOAD

TRONDHEIM SO BAROQUE ENSEMBLE

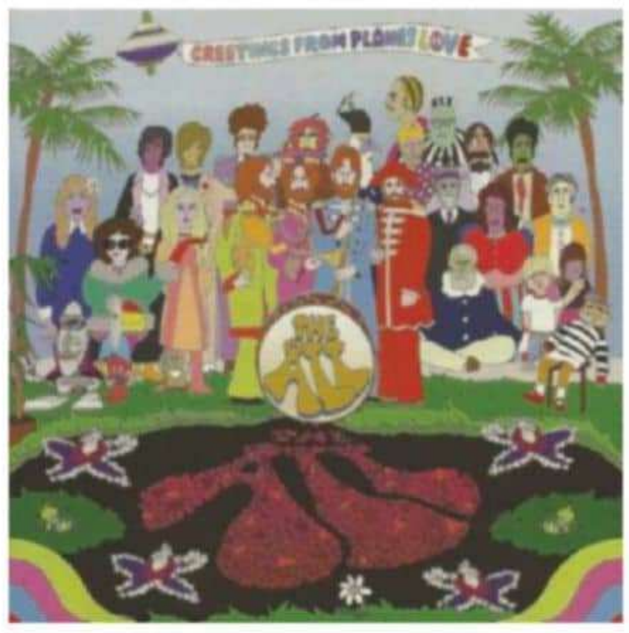
The Trondheim Concertos

2L 2L-172-SABD (Blu-ray + SACD)

If J. Geils, below, inspired you to sample surround but you prefer the unplugged, this recording in a church of a nine-piece ensemble offers such a remarkable sense of space that you'll be rendered agoraphobic. As is 2L practice, the SACD offers stereo and 5.1 DSD and PCM MQA CD, while the Blu-ray provides seven options up to 7.1.4 Auro-3D at 96kHz. And the music? The Trondheim Concertos refer to 18th/19th century manuscripts preserved in the city, spirited and lush-sounding performances of compositions from Johan Henrich Berlin and Joseph Meck, the anonymous 'Sigr Opfermand' Violin Concerto, and Vivaldi's Violin Concerto in A. *KK*

Sound Quality: 90%

0 - - - - - - - - - 100



THE FRATERNAL ORDER OF THE ALL

Greetings From Planet Love

Esoteric Recordings ECLEC2758

Andrew Gold – yes, the late singer-songwriter who gave us the *Golden Girls* theme 'Thank You For Being A Friend' – paid homage to the greats of the 1960s with this project from 1997, and it's an absolute knock-out. If you're old enough to remember that decade, you will be dazzled by note-perfect pastiches of The Doors, The Beach Boys, The Beatles, The Byrds and others. Further authenticity is added by the presence of Graham Gouldman, who was there writing for the likes of The Hollies and The Yardbirds. Gold's ear for nuance is peerless so this will delight those who dread the inevitable onslaught of musical fakes via AI. *KK*

Sound Quality: 85%

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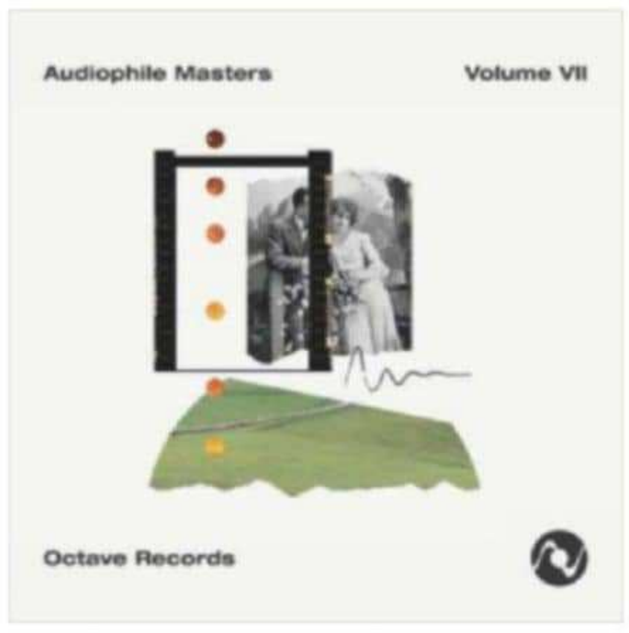


VARIOUS ARTISTS

Audiophile Masters Volume VII/VIII

Octave Records OCT0037/OCT0038 (downloads to DSD256 res.)

Wasting no time, Octave has released two more SACDs recorded in pure DSD in this series, perfect as samplers for the label and a wise way of try-before-you-buy assessment of its roster. Volume VII's ten tracks include Thom LaFond's adventure into seeing music as colours in 'Synthesia', Bonnie Sims' country tune 'Lorena', and more. Volume VIII provides classical and modern tracks: The Magee String Quartet, Alicia Straka's accordion composition 'Musette Souer', Russian soprano Ekaterina Kotcherguina with 'Three Early Songs' and others. Ideal for assessing depth and soundstage, these are fine adjuncts to Octave's 'how to' *Art Of Hi-Fi* discs. *KK*

Sound Quality: 90%

0 - - - - - - - - - 100

J. GEILS BAND

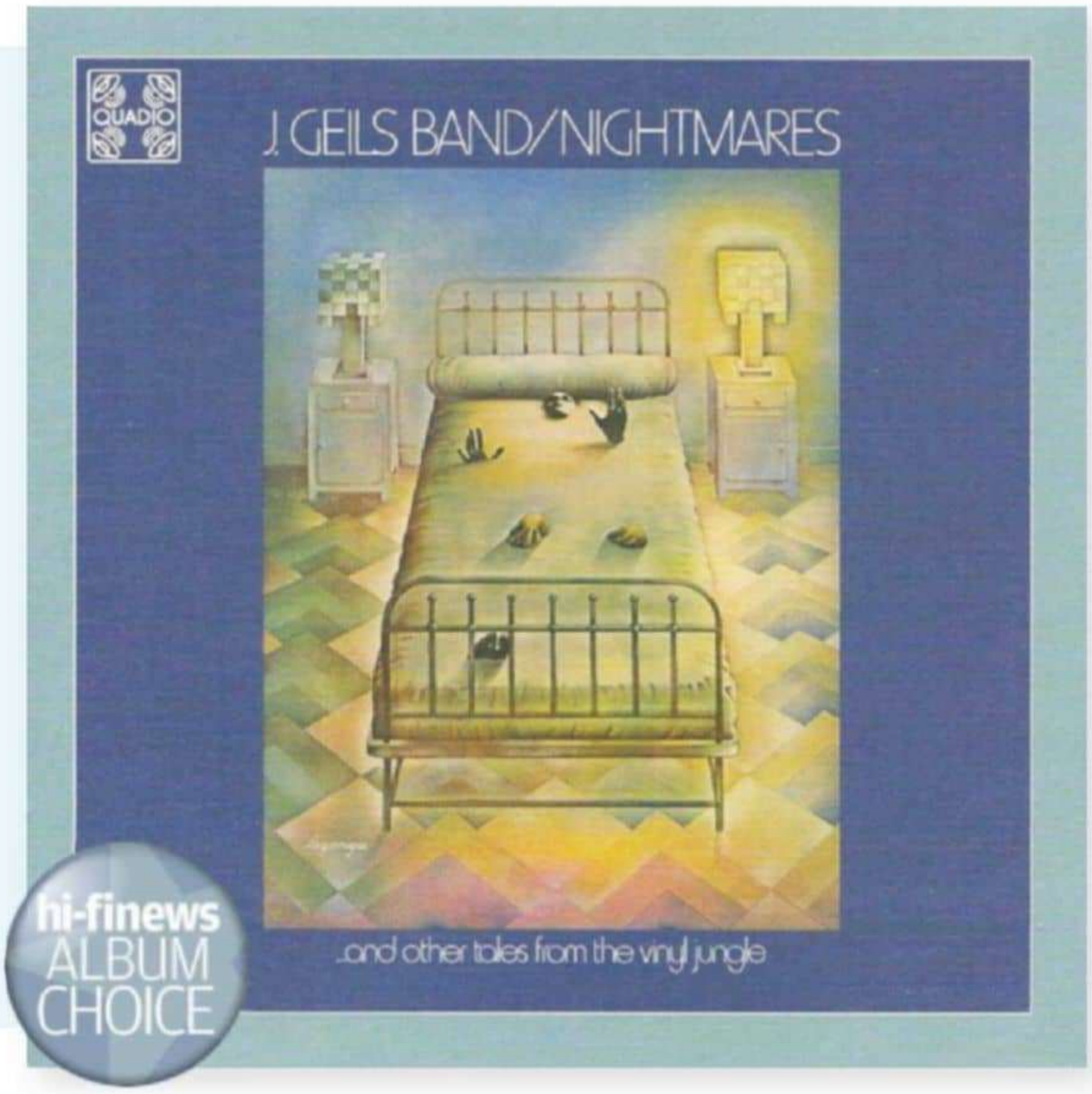
Nightmares ...And Other Tales From The Vinyl Jungle

Quadio/Atlantic BA2-18107 (Blu-ray audio)

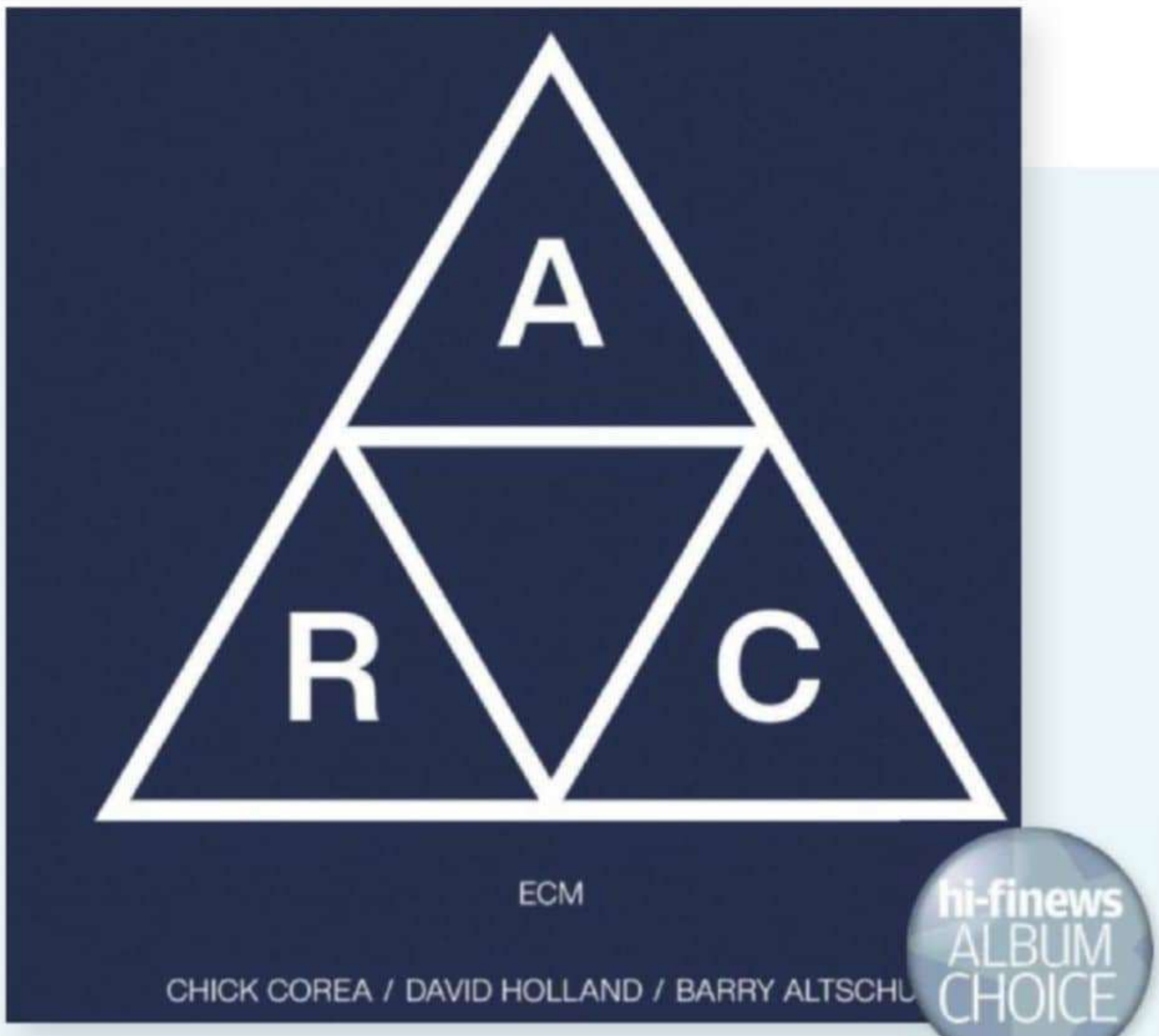
While not the first multichannel disc to contain true quadraphonic mixes, this release is one of a debut quartet of titles from Atlantic's new Quadio label restoring the original four-channel (4.0) array. Unlike remastering into 5.1, they're truer to the intended surround sound experience. There was so much centre fill that I had to put my ear to the middle speaker to make sure I'd set up my processor correctly. Aside from whether or not to use bass management, playback is automatic through any multichannel system. As for the music, hey, this is the criminally neglected J. Geils Band, R&B of the finest sort. Even *sans* subwoofer, it's massive and room-filling. The effects in the title track will simple dazzle you. *KK*

Sound Quality: 95%

0 - - - - - - - - - 100



HI-RES DOWNLOADS



A.R.C.

Chick Corea, Dave Holland, Barry Altschul (96kHz/24-bit, WAV)

www.ecmrecords.com; ECM 1009

A note to those behind the 50th anniversary Vince Guaraldi *Peanuts* album also reviewed this month: this is how you do it! This 96kHz/24-bit digital release of *A.R.C.*, also available on LP, marks half a century since this ECM debut by Chick Corea first saw the light of day, and is also sourced from the original analogue tapes, PM's lab notes below giving an overview of the process involved. It was worth all the effort as Corea's piano, Dave Holland's powerful bass and Barry Altschul's meticulous but punchy drumming really burst out of this set, which originated back in 1971 in the Tonstudio Bauer, Ludwigsburg, Germany. Both Corea and Holland contribute tunes, there's thoughtful improvisation, and the trio's version of Wayne Shorter's 'Nefertiti' is a tight, crisp standout, with every element of the trio crystal clear. This is one glorious-sounding album. *AE*

Sound Quality: 90%

0 - - - - - - - - - 100

TRICHOTOMY

To Vanish (44.1kHz/16-bit, FLAC/WAV)

www.earshift.com; Earshift Music EAR070

Full disclosure: I must admit to more of an affinity with the work of Australian jazz trio Trichotomy than is usual with much of the music making its way into these pages. In recent years I've experienced the band playing live a handful of times in the UK in different venues, including the salubrious surroundings of a Surrey golf club, home to the excellent Watermill Jazz. Having listened to the three – Sean Foran on piano, Samuel Vincent on bass and drummer John Parker – it's easy to appreciate the musicianship captured on this latest release, all three being classically trained. That solid foundation and effortless interplay is much in evidence here, in a set that pushes the limits of what just three musicians can deliver, from easy-going jazz to more avant-garde styles and even elements of prog rock. And it sounds every bit as good as it is entertaining. *AE*

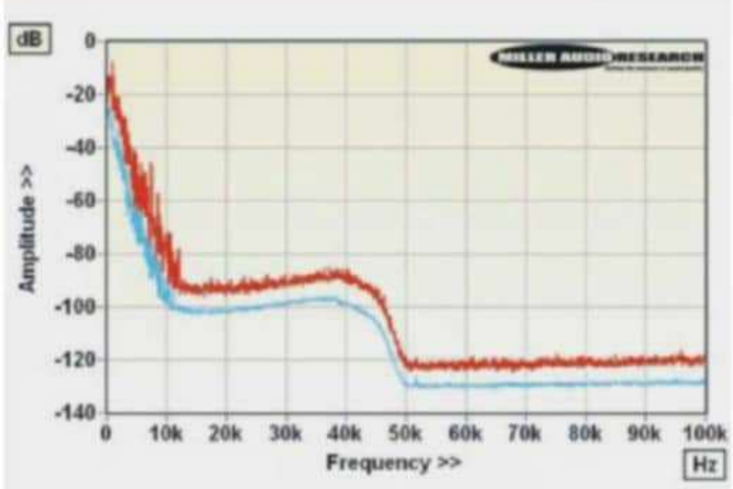
Sound Quality: 85%

0 - - - - - - - - - 100

OUR PROMISE

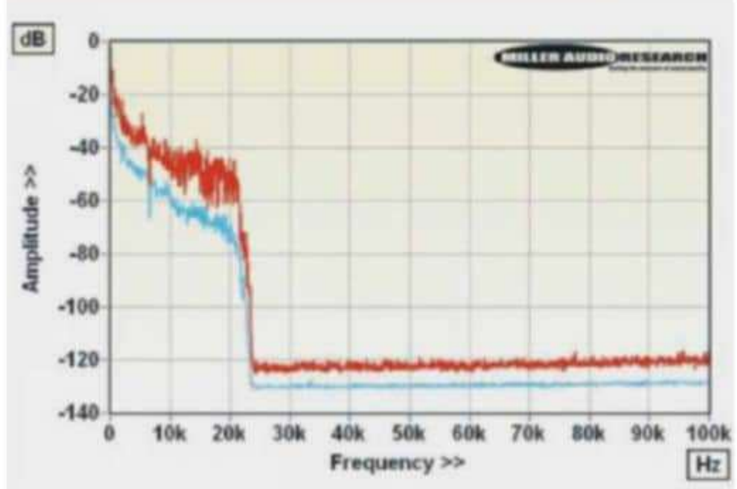
Following our Investigation feature [*HFN* Jun '11] where we examined the claimed quality of 'high-res' downloads, *Hi-Fi News & Record Review* continues to measure the true sample rate and bit-depth of HD music downloads. The Graphs show peak [red] and RMS [blue] spectra. These unique reviews will be a regular source of information for those seeking new and remastered recordings offered at high sample rates and with the promise of delivering the very best sound quality. (Note: an asterisk in the heading denotes a technical reservation – see Lab text). **PM**

LAB REPORT



The original analogue tapes have been meticulously restored after 50 years using a Studer A820 and PrismSound, Mytek and Antelope ADCs. The 96kHz sampling is generous but dynamic range beats many modern digital releases. PM

LAB REPORT



Aside from the title track (7) all these CD-resolution files are slammed into the 0.0dBFs digital endstops and possess a typical peak-to-RMS range of just 10dB. The recording is otherwise mercifully clear of aliasing and other artefacts. PM

CD COMPACT DISC | SA SUPERAUDIO | DVD DVD | BD BLU-RAY | VINYL | DOWNLOAD

LEVERTON FOX

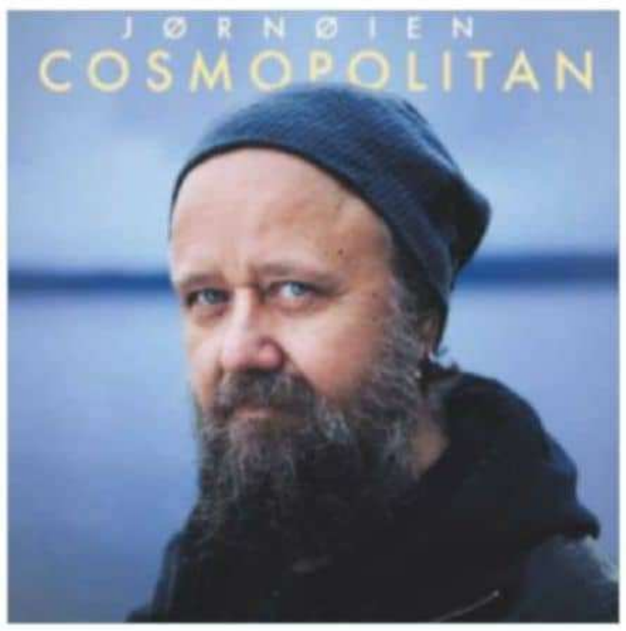
In The Flicker (48kHz/24-bit, WAV)

www.not-applicable.org; Not Applicable NOT062

Well, this one's hardly a toe-tapper, but it's as intriguing as it's fine-sounding. Leverton Fox comprises trumpeter and electronic musician Alex Bonney, drummer Tim Giles, and electronic musician/sound artist, Sam Britton, the latter also known by his solo alias Isambard Khroustaliov. *In The Flicker* was recorded in one day in September 2020, out of doors in a Sussex wood. Pairs of microphones were used to capture both the performances and the ambient sounds, and the album takes its inspiration from Stockhausen and its title from Conrad's *Heart Of Darkness*. Now that may well seem all very arty, but the effect is relaxing, natural, and very organic, even if you'll spend the first couple of minutes wondering if anything's going to happen. Oh, and if you're set up for Dolby Atmos, call the album up in Apple Music and go for total immersion! *AE*

Sound Quality: 85%

0 - - - - - - - - - 100



JØRN ØIEN

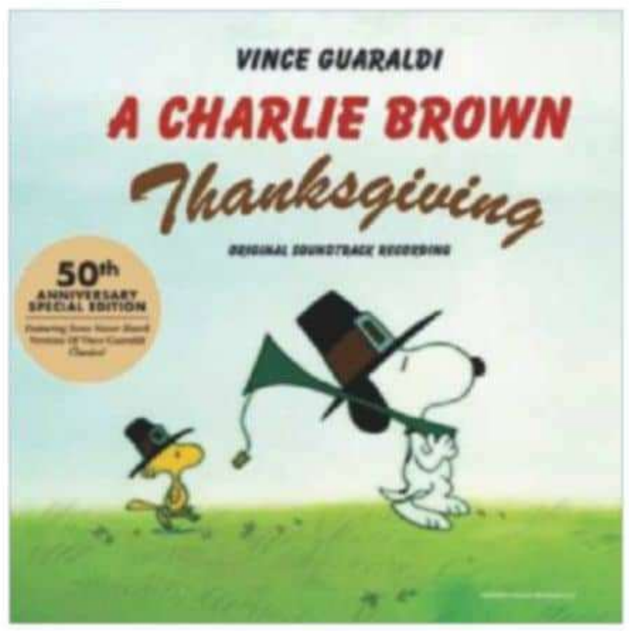
Cosmopolitan (48kHz/24-bit, FLAC)

www.curlinglegs.no, www.grappa.no; Curling Legs CLPCD301

Oslo-based jazz pianist and composer Jørn Øien cites as one of his major influences keyboardist and bandleader Joe Zawinul, whose band Weather Report the young Øien first discovered when just 16, getting on for 40 years ago. This long-lasting fascination is instantly apparent from the title track, opening an album Øien describes as 'a tribute and celebration of [Zawinul's] legacy' in a laid-back splash of electronic accents set against a rhythm section with its roots firmly in the 'World Music' genre. The pianist's other influences range from 'Sami folk music and joik, to the African continent – from Babylon to Brooklyn', and they're all on display in this relaxing, but always musically fascinating, set, aided by a detailed sound that really brings out the layers of performance and recording. Not just for Weather Report fans, this is an excellent listen. *AE*

Sound Quality: 80%

0 - - - - - - - - - 100



VINCE GUARALDI

A Charlie Brown Thanksgiving (192kHz/24-bit)

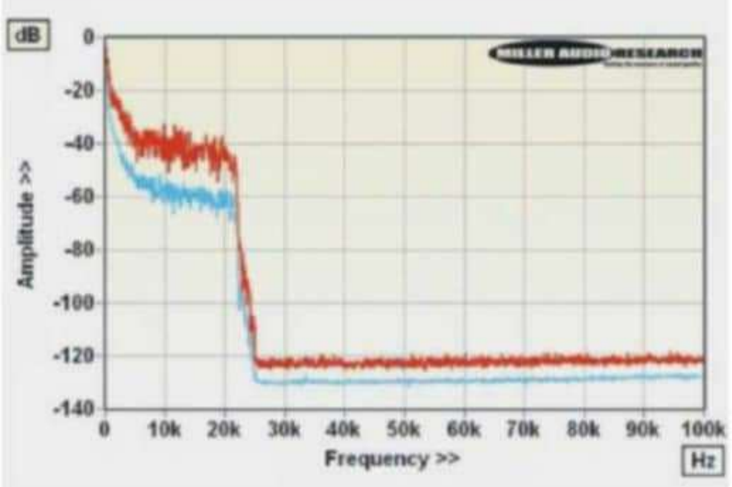
www.mendelsonproductions.com; LMFP LM02301

In the mid-1960s, the jazz piano of Vince Guaraldi set the tone for animated TV versions of Charles M. Schulz's iconic *Peanuts* comic strip. In 1965 *A Charlie Brown Christmas* mixed Guaraldi originals with jazz reworkings of festive standards by the pianist and his trio, featuring drummer Jerry Granelli and bassist Fred Marshall. That album was a big seller, and more followed but, sadly, what we have here is disappointingly short of a 'must have' tribute to the pianist, who died in 1976, aged just 47. It lacks the sparkle of that festive original, both musically – familiar themes are trotted out, and the multiple takes of some tracks are for completists only – and sonically. PM's lab notes [below] give an insight into why the sound is so muddy and vague, so you'd do better to find a decent release of the original Christmas album, and stick to that. *AE*

Sound Quality: 65%

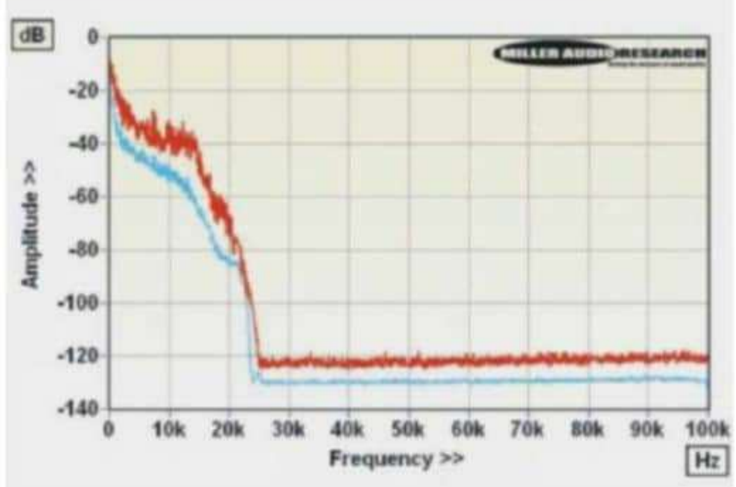
0 - - - - - - - - - 100

LAB REPORT



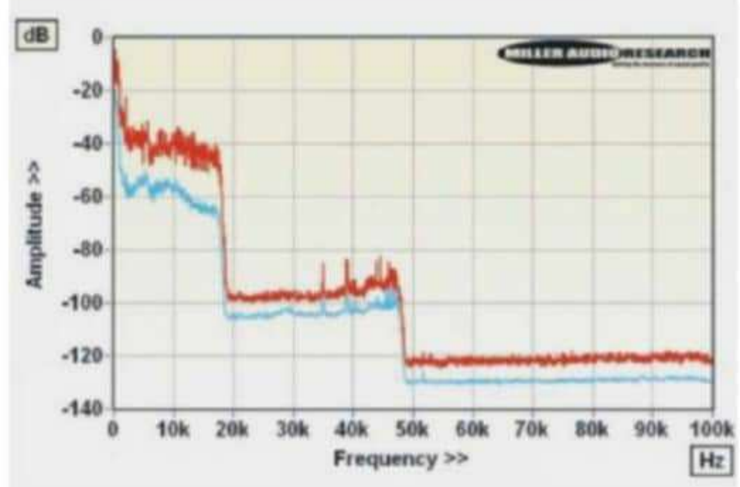
With few discernible 'instruments' in this electronic/ambient improvisation, *In The Flicker* is at times intense (a fine speaker warm-up album!) but all tracks are capped below –1dBFs and also possessed of an above average dynamic range. **PM**

LAB REPORT



With every track normalised to –1dBFs this 48kHz rendering should avoid tripping up those DACs that get into trouble at 0dBFs. However, with a typical peak-to-RMS range of ~11dB the available 24-bits are not fully utilised. **PM**

LAB REPORT



Originally aired 50 years ago, and more recently 'restored and re-mastered', this analogue recording looks, at some point, to have been limited to ~18kHz (lossy data compression?), resampled at 96kHz and resampled again at 192kHz. **PM**

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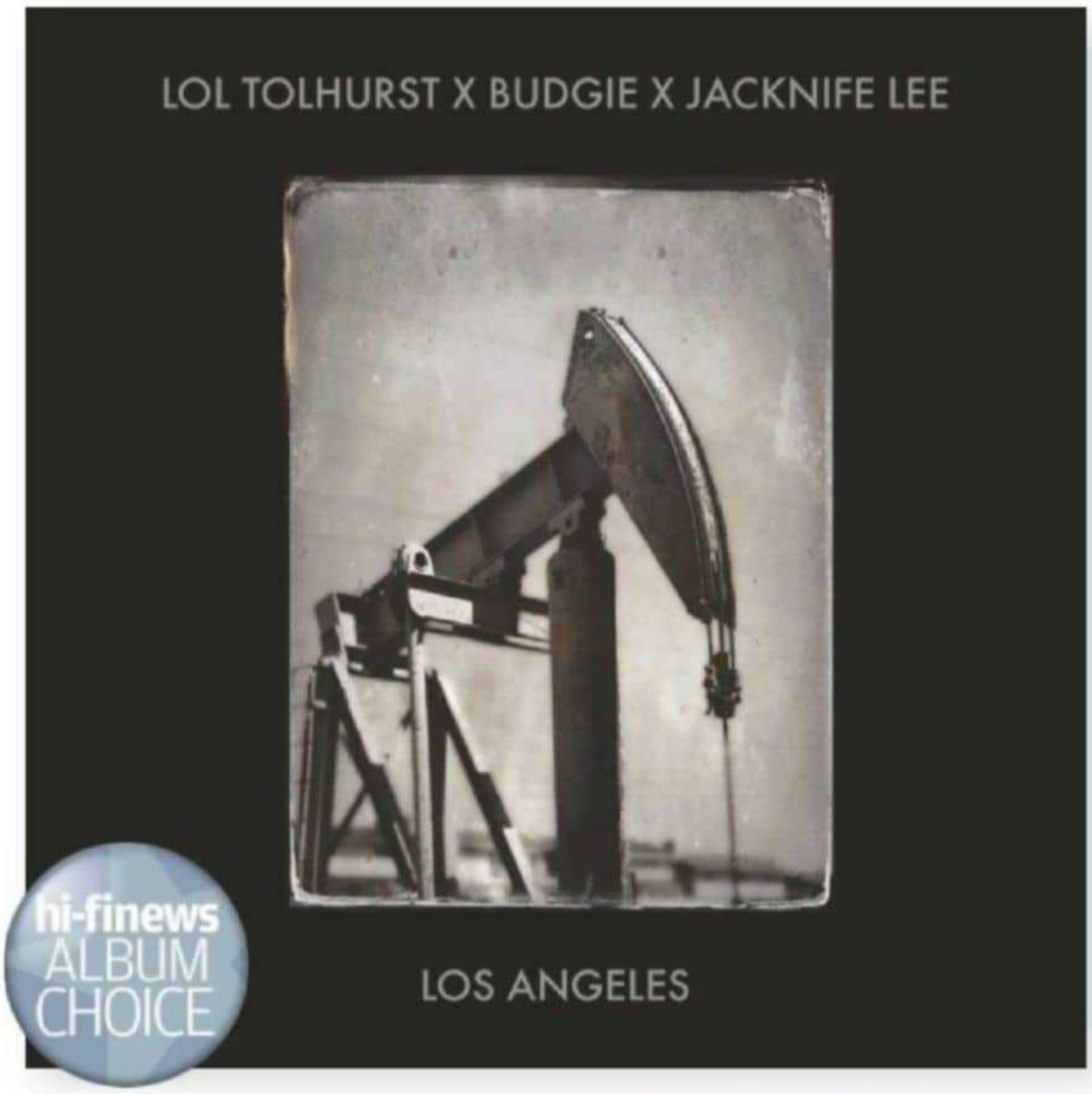


LOL TOLHURST X BUDGIE X JACKNIFE LEE

Los Angeles

Play It Again Sam PIASR1440CD; LP: PIASR1440LP

This fascinating album is the brainchild of two drummers – Tolhurst, ex of The Cure and Budgie from Siouxsie And The Banshees – who teamed up in 2019 with producer and musician Lee to record instrumentals. The Kraftwerk-inspired 'Train With No Station', featuring U2 guitarist The Edge, remains in that form, but the album has expanded stylistically. Over a base of polyrhythmic drums, synths and electronics, each song is shaped by guest performances. On 'Ghosted At Home' Primal Scream's Bobby Gillespie sings a yearning melody over heavy funk grooves; Arrow De Wilde glams it up insouciantly on 'Uh Oh'; and on 'Bodies', artist and activist Lonnie Holley's rap and Mary Lattimore's harp combine brilliantly. ***MB***

Sound Quality: 90%

0 - - - - - - - - - 100

EMMA ANDERSON

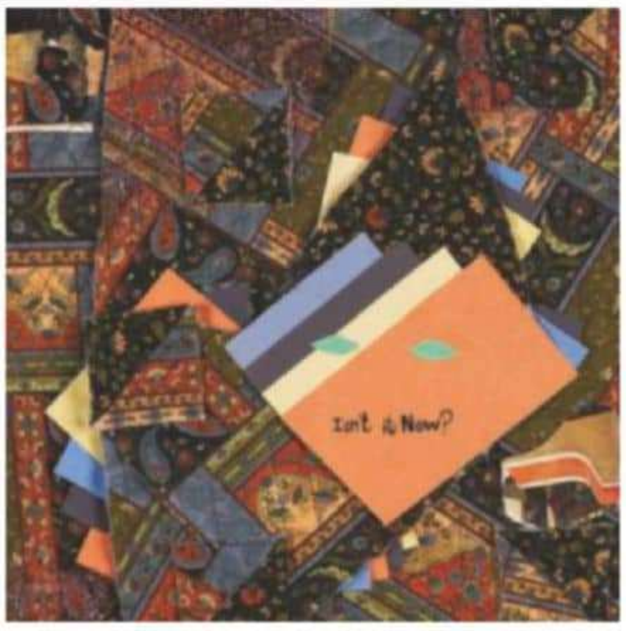
Pearlies

Sonic Cathedral SCR250; LP: SCR250LP

After an ill-fated Lush reunion in 2016, group co-founder, vocalist and guitarist Emma Anderson was left with a stack of unused compositional ideas, which have fed into her debut solo album. Some songs, such as the animated 'The Presence', carry the feel of that group, which overlapped the late-'80s shoegazing and Britpop scenes, while on 'Taste The Air', Anderson explores more pastoral paths, her light, mobile vocal melodies set in a gauzy backing of keyboards and picked guitars. The instrumental 'Xanthe' is a reminder that this was initially intended to be a collection of soundtrack music and the arrangement on 'Inter Light' has echoes of John Barry. *MB*

Sound Quality: 90%

0 - - - - - - - - - 100



ANIMAL COLLECTIVE

Isn't It Now?

DOMINO WIGCD528; LP: WIGLP528XM

In 2019 Baltimore quartet Animal Collective went on retreat and wrote two albums' worth of material of which 2022's *Time Skiffs* was Part One. This is its more challenging counterpart. Their intricate vocal arrangements hark back to The Beach Boys and Van Dyke Parks, but filtered through the elliptical sensibilities of Pavement. This gives an off-kilter feel to sunshine pop songs such as 'Broke Zodiac', but what marks them out is a need to keep pushing forward. This lands us in the brooding open spaces and unexpected chorus shifts of 'Magicians From Baltimore', although on the meandering chorales of 'Defeat' they do rather lose their focus. *MB*

Sound Quality: 85%

0 - - - - - - - - - 100

CATATONIC SUNS

Catatonic Suns

Agitated AGIT066CD; LP: AGIT066

This Pennsylvanian trio taps back into the psychedelic traditions of the US west coast, are beefed up by grunge and are clearly influenced by the immersive guitar racket of late '80s bands such as My Bloody Valentine and, on 'No Stranger', the dark cosmic riffing of Loop. Catatonic Suns create an enormous sound, psychedelically disorientating in its blurred and swirling qualities, and thrilling in its relentlessness. But there's also melody in there. 'Failsafe' is a more radiant moment with sweet chord changes and swooning vocals, and the clouds of their overdriven guitars part briefly on 'No Stranger' to reveal sitar twangs and celestial keyboards. *MB*

Sound Quality: 80%

0 - - - - - - - - - 100

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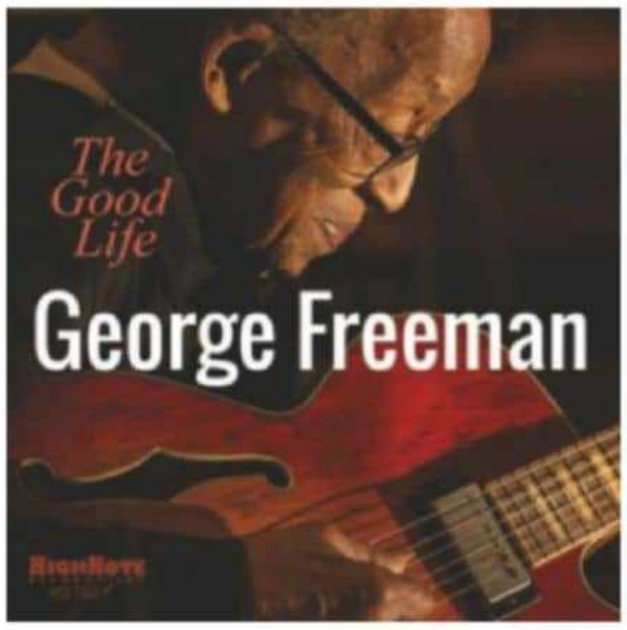

GEORGE FREEMAN

The Good Life

High Note HCD 7352

It's astonishing to hear recordings made only last year by the veteran guitarist whose band (including saxist brother Von) once backed Charlie Parker at Chicago's Pershing Hotel in 1950. Freeman had just turned 95 when he recorded four numbers, including the title tune, with Christian McBride and Carl Allen. On a second session Freeman, who'd worked with Richard 'Groove' Holmes in the 1960s and Jimmy McGriff in the '70s, teamed happily with the greatest Hammond player of modern times, Joey DeFrancesco, along with drummer Lewis Nash. Sadly, DeFrancesco was to pass away just a couple of months later, making this a poignant piece of jazz history. *SH*

Sound Quality: 80%

0 - - - - - - - - - 100

HIROMI

Sonicwonderland

Telarc TEL00170; LP: TEL00171 (two discs)

After two acoustic studio albums, *Spectrum* and *Silver Lining Suite*, the amazing Japanese pianist has returned to electric music, recruiting three incredibly talented musicians for her new band, Hiromi's Sonicwonder. Jaco-influenced bassist Hadrien Feraud is partnered on drums by the superbly propulsive Glen Coye, while Adam O'Farrill is a brilliant trumpeter whose playing can be really beautiful – as on the expansive 'Polaris'. 'Reminiscence', with lyrics co-written and sung by Hiromi's old friend and one time Berklee classmate Oli Rockberger, makes a sweet and sentimental interlude. But otherwise this is an exhilarating and breathless ride. *SH*

Sound Quality: 85%

0 - - - - - - - - - 100

JOSHUA REDMAN FEATURING GABRIELLE CAVASSA

Where Are We

Blue Note 5525300; LP:5525301 (two discs)

Seductive Italian American singer Cavassa joins the saxophonist here to take us on a USA trip, picking up star guests along the way. Trumpeter Nicolas Payton enlivens 'Do You Know What It Means To Miss New Orleans', Joel Ross adds vibes to a 'Chicago Blues' that mashes up Basie with Sufjan Stevens, and guitarists Peter Bernstein and Kurt Rosenwinkel appear in 'Manhattan' and on the 'Streets Of Philadelphia'. The journey starts with Redman's original 'After Minneaopolis', written days after the Floyd killing – and ends with a re-write of the old pop song 'Where Are You', leading to the question that's in the album title. *SH*

Sound Quality: 85%

0 - - - - - - - - - 100

TENDERLONIOUS

You Know I Care

22a Records 043 (CD and LP)

Gifted UK multi-instrumentalist and producer Ed Cawthorne, *aka* Tenderlonious, has recorded prolifically on his own 22a label with his jazz fusion band Ruby Rushton and also in genres ranging from Indian music to pure electronica. This time he pays tribute to 1960s jazz greats who've inspired him since his early days as a DJ. The title song by Duke Pearson was originally a feature for flute, Tender's primary instrument, and he plays it eloquently here. But on most tracks he is melodious and engaging on alto saxophone. It's an album of warm, gentle grooves created by Pete Martin and Tim Carnegie on bass and drums with lovely flowing piano work by Hamish Balfour, but above all, Tenderlonious plays with heart and soul. *SH*

Sound Quality: 90%

0 - - - - - - - - - 100

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PIERRE-LAURANT AIMARD, SFS/SALONEN

Bartók: Piano Concertos Nos 1-3

Pentatone PTC5187029 (downloads to 96kHz/24-bit resolution)

A Hungarian passport isn't essential to pass 'Go' in this music on CD, but top-notch engineering is: we're almost under the lid of Aimard's piano, and a decent system will get the San Francisco Symphony's timpanist pounding beneath your feet. Yet the effect is never aggressive, even in the *Allegro barbaro* of No 1, because Aimard and Salonen make such natural and musical sense of pieces often treated as an excuse to rough up an audience. I love the lopsided night-watch marchers at the heart of No 1 as much as the sensuous nocturne in No 2 and the Mozartian simplicity of No 3's *Adagio religioso*. Schiff and Anda have never won me over to these concertos in all their exotic, sometimes baffling diversity, but Aimard does. *PQ*

Sound Quality: 90%

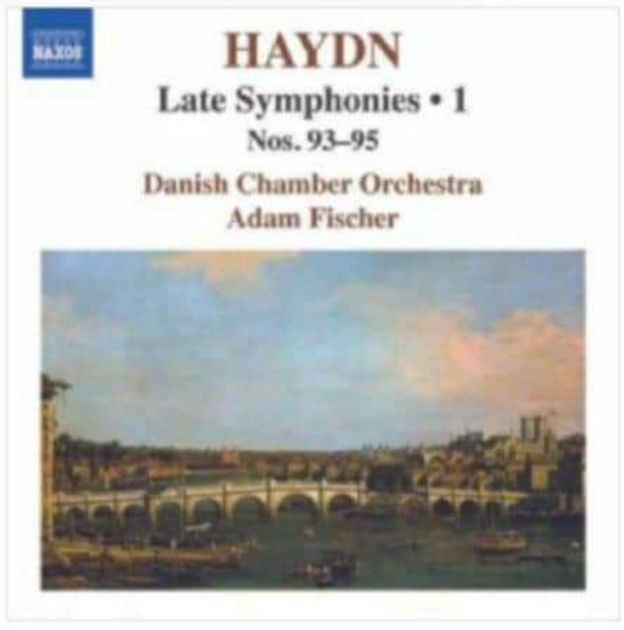
PYGMALION/RAPHAEL PICHON

Monteverdi: Vespro Della Beata Vergine

Harmonia mundi HMM902710.11 (two discs; downloads to 96/24)

First presented as a *son et lumière* event across southern France, this is widescreen Monteverdi, sumptuously performed and recorded. A rich continuo contingent supports a weighty string band and a thrilling battalion of winds. Pichon's grand pacing and use of space brings a refreshing reminder of the scale of the *Vespers* as conceived for the St Mark's Basilica. The top line of the 40-strong choir fairly pierces the air, but the soloists use their natural vibrato to project their psalms and hymns with an exquisite, madrigalesque tension between declamation and reflection. We haven't had a *Vespers* like it since Gardiner's in Venice, almost 35 years ago [Archiv]. *PQ*

Sound Quality: 90%



DANISH CO/ADAM FISCHER

Haydn: Symphonies Nos 93-95

Naxos 8574516 (downloads to 44.1kHz/16-bit resolution)

Fischer's Haydn cycle for Nimbus is showing its age, and outclassed by the precision, the energy and characterful phrasing of the Danish CO players. Some stylish new ideas in Fischer's direction always serve the drama and the contrast between town and country idioms in Haydn's symphonic dialogues. The RCA engineering for Paavo Järvi's Haydn is more forensic [*HFN* Oct '23] – you'll have to turn the dial right up at the beginning of 94(ii), and then you'll *really* get a surprise. The C minor 95 also crackles with purpose before finding a proto-Beethovenian pathos for (ii). All three minuets are beautifully weighted, especially the broad-shouldered (iii) of 93. *PQ*

Sound Quality: 85%

PHILHARMONIA ORCH & CH/SANTTU-MATIAS ROUVALI

Mahler: Symphony No 2 'Resurrection'

Philharmonia/Signum SIGCD760 (downloads to 96kHz/24-bit res)

This one-off, live RFH recording mostly belies its origins in a classically taut and meticulously score-sensitive opening trio of orchestral movements. Mezzo Jennifer Johnston raises the emotional temperature with an 'Urlicht' of grave but consoling dignity, respecting the origins of the song as a prayer for the nearly departed. When the apocalypse arrives in (v), Rouvali pulls back and out to stagey effect. The microphones favour vocal and orchestral soloists over the chorus, and the heavens finally open with gilded splendour rather than the weight of Bychkov [Pentatone] or the ecstatic fervour of Jurowski [LPO]. *PQ*

Sound Quality: 85%

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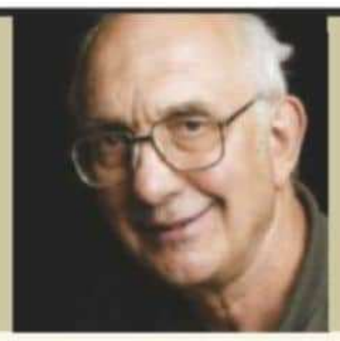


Barry Fox
Technology journalist
Barry Fox trained in electronics with the RAF and worked as a patent agent, but he gave that up to enter journalism. He is one of the world's top technology writers

Blast from the past

Traditional pipe organs and their Hammond successors sound like no other, believes **Barry Fox**, which is why he's thrilled to hear that Ronnie Scott's has tracked down an original B3 model

You don't get much more analogue than a church organ. A conglomeration of moving parts, air pumps, pipes and stops, controlled by mechanical keys and valves. I recently went to a recital in Hereford Cathedral. The organ was built by the go-to designer Henry 'Father' Willis in 1892, but some of the pipework is from an earlier design by Gilbert Scott. It's been repaired and modified many times over the years, notably in the 1930s when the keyboard was moved across the church from the puffing pipe mechanics and connected by electric cables, recently modernised because they were a sparking fire risk. A video camera gives the audience a view of the keys.

ABOVE: A screen at Hereford Cathedral shows the keys of the organ via a video camera after the keyboard itself was moved away from the pipework (right), now protected behind glass

PIPE DREAMS

Like all pipe organs, the system remains better suited to generating rolling bass than following fancy fingering. While trying to discern the catchy melody of a Percy Grainger tune through the thunder and reverb, I kept thinking of it as an elephantine ecclesiastical version of jazz pianist George Shearing's elegant block chords.

Enter the legendary Hammond organ – most famously the B3 model – designed for smaller churches to use in the 1930s and 1940s. It relied on spinning wheel optics and valve amps to create the tones which giant Leslie speakers with internal fans wafted round the room. Foot pedals added punchy bass. The hot gospellers who used those churches created the Hammond 'sound' that 1950s rhythm and blues bands and jazz players like Jimmy Smith appropriated.

Modern digital keyboards try to mimic the distinctive B3/Leslie sound. They even reproduce the defects of the original organ, such as key click – a transient popping made by the mechanical leaf switches, which grow metal whiskers over time – and the swirling sound of the Leslie fan and drive motor.

Although modern keyboards do a remarkable job of generating the B3/Leslie sound from a case you can carry on a bus, if you talk to a gigging keys player they still drool over the chance to play an original B3 beast. It's the live music equivalent of spending a fortune on vinyl. But only the biggest names, like Georgie Fame in the UK, can afford the trucking.

> '"We were convinced as soon as we played it"'

In the spirit of back-to-analogue extravagance, Ronnie Scott's club in London has now bought its own B3. Miles Ashton is head of sound and tech at Ronnies. He cut his teeth engineering the audio for the National Youth Jazz Orchestra, started in 1965 by his father Bill Ashton.

GOOD AS NEW

Says Miles: 'The B3 we have bought has a completely original wooden case that is all in one piece. We found it at an enthusiast's home in Dorset. An all original 1958 cherry wood B3, with a Leslie 122 cabinet and bench and bass pedals – all still completely original and in mint condition, which is very unusual.

'We were convinced as soon as we saw it and played it – we couldn't believe we'd found one as good as that in the UK. There's a lot in America, but you pay big money to import them and the tone wheels have to change because in the UK we have 50Hz mains instead of 60Hz and that affects the pitch.

'The Hammond organ and Leslie are mono. But because of its rotating speaker, when you mic it left and right, it becomes a stereo thing', adds Miles. 'Apparently the old man Hammond hated the whole rotating speaker thing. He was a church guy and he didn't like his organ to be used in pop and rock 'n' roll. He didn't allow Hammonds and Leslies to be sold together, but the story is they used to bundle them together and sell them out the back door and he never knew!

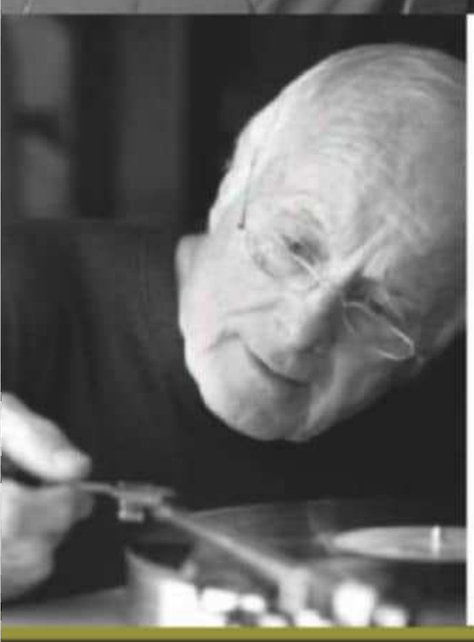
'The Leslie has only broken down once so far. The internal amp is getting fixed. The Hammond is very beautiful and sounds ace. Now we just have to protect it and stop it from being scratched! When it's not being used on stage we are going to keep it on display – in a glass case.'

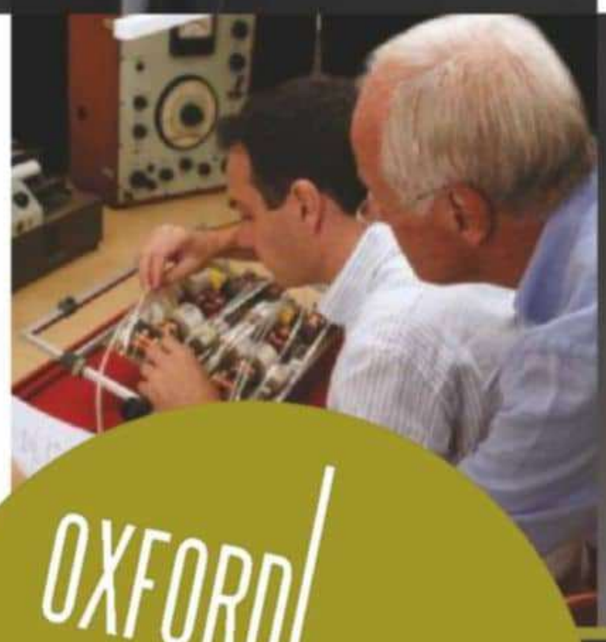
Well, you certainly don't get more analogue than that.

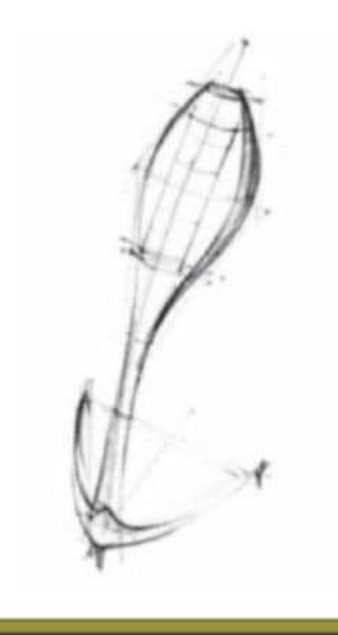
FRANCO SERBLIN AT OXFORD AUDIO

After leaving Sonus Faber, founder Gianfranco Serblin went on to develop a more traditional range of striking high-end speakers. Featuring the classic "Serblin" sound, each model has exquisite build, use of only the finest components, complex cabinets and handmade in Italy.

There are four models: Lignea & Accordo (standmounts) and Accordo Essence & Ktêma (floorstanders).







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Barry Willis
Journalist for top American audio-video publications
While his main interest is high-end audio, Barry Willis also writes about the culinary industry, visual art and theatre for a huge variety of US newspapers and magazines

Worst format ever?

Cassette players and recorders offered a real high-fidelity alternative to eight-track machines, says **Barry Willis** – but the quality of mass-produced pre-recorded tapes is another matter

Purveyors of memorabilia say that people have an irrational fondness for the things of their youth: small bicycles with high-rise handlebars, Barbie dolls, ragged denim pants with voluminous bell-bottoms. Almost everything looks ridiculous in hindsight, and almost everything with nostalgic appeal bears an insane price tag. Foremost among them is the pre-recorded cassette tape – the music industry's hugely profitable product that dominated the market for at least a decade, maybe even two.

ABOVE: Launched in 1984, the Aiwa AD-F770 was a three-headed cassette deck rich in features while also boasting a computer-controlled tape optimisation system and dual-capstan drive

MAKING TRACKS

The pre-recorded cassette tape began where the eight-track cartridge left off. Were it not for the fact that the eight-track enjoyed a mercifully brief popularity, it would definitely come near the top of any list of the worst audio formats of the late 20th century. There are, of course, several obsolete media formats with inexplicable followings – LaserDisc, anyone – but to my knowledge the eight-track cartridge doesn't have one. And with good reason: the clunky eight-track was so poorly conceived that most players lacked the ability to find the beginning of a song on an adjacent track. You hit the 'next' button and just hoped for the best.

The emergence of the cassette tape as a high-fidelity medium was partially a happy result of advancements made in player/recorder design by several electronics companies, most notably Nakamichi and Tandberg. You couldn't go wrong with either brand. Others made contributions to the art as well: Harman Kardon introduced Dolby HX (headroom extension) technology in the early 1980s, a scheme that used incoming high-frequency content to modulate the bias level during recording, thereby depositing the last drop of detail on low-speed tape. And the gods were smiling on you if you were lucky enough to have owned an Aiwa AD-F770 – my candidate for the most brilliant and most under-valued piece of gear from the cassette era.

HIGHS AND LOWS

Ray Dolby deserves mention in any discussion of cassette tape. He began his career as a radio astronomer, scanning the background noise of the universe for signs of intelligent life – basically, an exercise in separating signal from noise. The insight he gained formed the basis for Dolby noise reduction, wherein upper frequencies are boosted during recording, then pushed down by an equivalent amount in playback, thereby improving not only signal-to-noise ratio but usable dynamic range.

> 'Ray Dolby toyed with producing tape decks'

Early on, Dolby toyed with producing tape decks but realised that licensing his technology was where the real action lay. Dolby Labs reportedly earned approximately $1 each in licensing fees from the more than one billion cassette decks manufactured worldwide during the format's dominance. Advancements in electro-mechanics and signal processing combined to lift the cassette tape from a lowly dictation device to a true high-fidelity format. With a decent machine and quality tape (Maxell or TDK, for example) you could get really good results recording from vinyl, and especially from CD. It's often forgotten that CD and cassette co-existed quite comfortably for years, to the consternation of the recording industry.

The despicable pre-recorded cassette tape is another story altogether. It's astounding to discover that what I have always considered toxic landfill actually has value – people will pay US$50 or $60 for favourite tapes from the 1970s and '80s. The products that flooded the market then were made on high-speed bulk replicators using the cheapest possible tape in low-precision, high-friction housings. The production cost for most of them could not have exceeded twenty-five cents per unit, but they sold at the same prices as vinyl LPs and CDs, and people bought them by the millions.

EATEN MESS

It was an incredibly cynical move by an incredibly cynical industry, a move swallowed whole by a gullible public. A friend with a massive collection of such products – they haven't improved with age – complains that when he tries to play most of them, his tape decks 'eat' the tape. Yet on the test bench his machines prove problem-free when given high-quality tapes. So it's the product that's at fault, not the format.

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Jim Lesurf
Science Journalist
Jim Lesurf has spent a lifetime in audio, both as an engineer at UK hi-fi company Armstrong and reader in Physics and Electronics at St Andrew's University

Under a cloud

Jim Lesurf admits his way of storing digital music – on a physical solid-state drive – might be thought 'old fashioned', but it protects him from data hacks and lowers his carbon footprint

Back in the October 2023 issue I outlined how I find it more convenient to store my digital music files on solid-state drives (SSDs) and move these from room to room and between systems on foot rather than use a NAS. This led me to think a bit more about my approach given that it differs from what most people do.

Over the last decade or so, many people have moved beyond having a NAS running one or more traditional spinning hard drives in their home and now use their mobile devices to stream music from the cloud. In effect, they store much of their personal information on remote who-knows-where places. This is certainly convenient. After all, it means you can access content not just at home but wherever you happen to be. Yet there is a snag, and one that hides out of sight...

A STORM BREWING

The obvious drawback is that your content and information might be vulnerable to the activity of 'black hats' who may steal personal data for their own dubious purposes. That's something most people are aware of. They hear reports of personal data being hacked and understand this can lead to scam attempts and digital blackmail, *etc*. But there is another looming problem which has been in the news media a lot recently.

Quite simply, depending on your provider, the cloud is not always especially 'green'! The reality is that it usually consists of a vast number of computers, stacked up in large buildings around the globe, all running 24/7. Your data – often duplicated to prevent loss – is immediately available, along with the data of everyone who uses the cloud. As a result, even when you aren't using any of your devices or need access, energy is being consumed to keep this all running – just in case you want the data now. How much energy is consumed is hard to say.

You pay for this, of course. But in part that means you are paying your share of the cost of a lot of electric power even when you're not needing it. In contrast, an SSD able to hold gigabytes of data with a USB lead and an adapter can be switched off when not being used. It then consumes no power until you need to access it again. When off and disconnected, it can't it be hacked remotely either.

Of course, the cost of buying an SSD does include the energy used to manufacture it, package it, and transport it to you, physically, when you purchase it. And there is always a risk that it may fail at some point, get stolen or become misplaced. But it does also mean you do own and hold your digital information. Whereas with the cloud you are, instead, renting access to your own data.

RIGHT: Storing digital data in the cloud, whether music, photos or video, allows for convenient access from a network-connected device such as a smartphone, but the author wonders about its green credentials

> 'With the cloud you are renting access to your data'

A SMARTER CHOICE?

There's an old definition of 'Engineer' along the lines of: 'Someone who can do something quickly for a pound what any fool could do more slowly for ten pounds'. However, engineers did invent and develop both the cloud and technology such as solid-state drives and USB connectors. So perhaps the smart thing to do is decide which of these many options best suits your needs. If some data is frequently used all the time and in varying locations then the cloud may make good sense after all. But in domestic circumstances, maybe a traditional approach to local storage is better.

Having given thought to this, and despite my way seeming old-fashioned or daft, I do prefer to keep my data 'at home'. Particularly given events of the last year and concerns about the future.

ABOVE: A typical NAS drive with a number of bays to hold traditional spinning hard drives

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Peter Quantrill
Music Journalist
Peter Quantrill has been writing about music for magazines and record labels for 30 years. When not hunched over a CD player, he'll be at a concert, or the cricket

Northern territories

Down-to-earth humour and cucumber salad... once he dried out from watching *Tosca* in the rain, **Peter Quantrill** used insights gained from a book to guide him on a trip to Sweden and Denmark

A late summer trip to southern Sweden took me to Birgit Nilsson country: the Bjäre peninsula, where the soprano grew up as a farmer's daughter. If only the legacy of other celebrated musicians was curated and managed with the loving care of the Birgit Nilsson Museum, run by her cousin's daughter, Gitte Lindström Harmark.

The contrast with Maria Callas, for example, was unavoidable. Only this summer, 46 years after her death in Paris, has a museum opened in Athens, and it inevitably preserves just a fraction of her effects, which were snaffled up and sold by any number of dubious hangers-on, making a quick buck out of their proximity to her celebrity.

RIGHT: Michael Fabiano reprises the role of Cavaradossi alongside Joyce El-Khoury as Tosca while braving the elements at the 'Birgit Nilsson-days 2023' event in Västra Karup, Sweden

LOCAL HERO

Nilsson, however, enjoyed a stable home life, and knew how to manage her money. In her home village of Västra Karup, the museum displays everything from contracts to costumes. I held one of her sensible shoes, and peered through glass cases at emeralds and diamonds which were among the rewards for becoming the leading Brünnhilde of her generation in an era when opera offered big money for all concerned.

The ostensible purpose of the trip was to review an open-air performance of *Tosca*, staged in a field next to the museum. I had never sat through an opera in the driving rain, and it's an experience I have to say I wouldn't repeat even if Nilsson herself were on the covered stage. The compensations, as is often the case on such excursions, lay elsewhere, and in the unexpected. A cake named after the Swedish queen, the simple grave for Nilsson and her husband, a perfect cucumber salad prepared to Lindström Harmark's own recipe at the Birgit Nilsson Museum's café...

> 'I had never sat through an opera in the driving rain'

Best of all, I found myself in Ingmar Bergman country, just a few bays north of the setting for the opening sequence of *The Seventh Seal*. A concert hall has been built – again, with the prudently invested capital from Nilsson's legacy – and a short walk away is the country-house setting for Bergman's first film in colour, a forgettable comedy. Before the rains came, all the same, the gardens were no less evocative of Bergman than if the house-shoes still had Nilsson in them.

Observations throughout the trip brought to mind the book which has rewarded me more than any other since it was released last year. *The Northern Silence* covers most aspects of Nordic/Scandinavian life and culture, from art and music to binge-drinking and rotten-fish eating. Its author is Andrew Mellor, who is a friend of mine so I am biased, but I cannot imagine anyone finding time spent with it unrewarded.

Mellor takes his many trips through the region and conversations with its inhabitants to peel back the layers of a culture which many of us observe from the outside as cold, abrupt, intense and resistant to outsiders (and therefore perhaps all the more appealing to some). None of those characteristics are contradicted so much as deepened by an understanding of their origins.

Certainly, just a hundred miles north of Copenhagen, the well-travelled Danish concept of *hygge* was in evidence among all those on the Bjäre peninsula who welcomed us, a handful of nosy foreign music journalists, to take our notes at the affection they evidently still felt for Nilsson. This was perhaps less as a musical artist than as someone who had brought prosperity and a measure of fame (not too much) to their land.

NORTHERN SOUL

As Andrew Mellor has pointed out to me before now, though, the Danes have no word for 'please', and the customs and courtesies of the North are not ours (as well, of course, from being different to each other's). Geographical determinism is the easiest game to play and the largest trap to fall into when discussing culture, but *The Northern Silence* brings climate and architecture, language and opera all together, in giving that silence a voice to us outsiders.

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Steve Harris
Contributor
Steve Harris edited *Hi-Fi News* between 1986 and 2005. He loves jazz, blues music, vinyl and vintage hi-fi and anything that makes good music come to life

Listen up

Steve Harris warns it's not only rock music fans who need to take care of their ears in this era of headphones, and meets the jazz singer reaping the benefits of digital hearing aid technology

In 1976, The Who played 'the loudest concert ever' at The Valley football ground with a level of 126dBA at 30m from the stage. Rather horrifyingly, other bands have since smashed The Who's record and destroyed the hearing of many fans in the process. An Ottawa concert by Kiss in 2009 is said to have reached a reading of 136dB.

By then, though, the *Guinness Book Of World Records* had discontinued its 'loudest band' category rather than encourage further hearing damage, and The Who's Pete Townshend had funded the US non-profit HEAR [Hearing Education and Awareness for Rockers].

ABOVE: Herbie Hancock, who has been wearing hearing aids since 2006, pictured on stage in Freiburg in 2017 (left) and (right) the Dutch-born, but now UK-based, jazz singer Wilma Baan

EAR TODAY, GONE TOMORROW

Among other musician casualties is jazz/rock guitarist Al Di Meola, who suffered catastrophic tinnitus and had to give up the electric guitar for several years. Herbie Hancock has been wearing hearing aids since 2006, and has been quoted as wishing he'd worn earplugs from the beginning of his career.

Dutch-born but now UK-based singer Wilma Baan was once forced to give up music because of hearing impairment – but now, in her later years, has released two albums of songbook and jazz standards. *So Nice* (2021) and her current *Look At Me Now* were both empathetically produced by Claire Martin OBE and engineered by Chris Traves, with superb arrangements by pianist Graham Harvey.

> 'A concert by Kiss in 2009 is said to have hit 136dB'

In the early 1980s, Wilma was working as a nurse by day and singing by night. She continued to perform whenever possible while her husband's oil company career took their growing family to Oman, Brunei, Borneo and Greece. But she'd began to suffer hearing loss.

The crunch came one day, she says, when rehearsing with a trio: 'They said, "Sorry, but you are off pitch". That was my traumatic moment. I thought, right! Okay! This is it, bye bye singing'.

Back in the Netherlands, Wilma learned that the analogue hearing aids of the day wouldn't help. She had to bide her time until 1996 when digital hearing aids, where the response of the device could be tailored to the hearing of the user, became available in Europe.

'And I was, you know, I don't care what they look like, I will just buy a pair! It started with what they called in-ear, like a blob of chewing gum, completely auricle-filling. They were monstrosities really. They completely close off your ear.'

Smaller versions followed, the receiver-in-canal (RIC) and completely-in-canal (CIC) types, still closing off every natural sound. 'That took getting used to. But then, in 2000-something, there came these lovely open fits. You have the technology behind your ear, but you have this little tube leading into your ear. Basically, nobody sees that.'

Importantly, the tube does not fully block the ear canal, so you still receive natural sounds as well as the amplified sound from the tube. 'I was a bit worried when I decided that I wanted to make an old dream come true and record an album', admits Wilma. 'I thought, in order to record I need to wear headphones, and I almost panicked! Because when you close off the microphones that I use you will immediately get feedback, the dreaded whistle!'

KEEP IT DOWN

Chris Traves solved this issue by giving Wilma the open-back HD 660S from Sennheiser. Monitoring on stage needs care too and ideally, Wilma would like a system that streamed the signal to her hearing aids by Bluetooth, the same way she connects to her phone.

Wilma's story is an inspiration, but perhaps also a warning. You don't need to be an old-style headbanger, or a fan of ridiculously loud concerts like those that took place in the 1970s, to suffer hearing impairment. Today, loud sounds from headphones and earbuds are damaging the hearing of a whole generation.

YOUR VIEWS

Sound Off!

Send in your views to: Sound Off, Hi-Fi News, AVTech Media Ltd, Safeship Fulfilment Ltd, Unit A, Cullet Drive, Queenborough, ME11 5JS or email your views to: letters@hifinews.com – please use 'Sound Off' in your subject field

Correspondents express their own opinions, not those of *Hi-Fi News*. We reserve the right to edit letters for publication. Correspondents using e-mail are asked to give their full postal address (which won't be published). Letters seeking advice will be answered in print on our Sound Off pages, but due to time constraints we regret we're unable to answer questions on buying items of hi-fi or any other hi-fi queries by telephone, post or via e-mail.

SHURE NO MORE?

ALTERNATIVES TO ORIGINAL BRAND'S STYLI

In a number of recent cartridge reviews I have seen favourable references made to Shure pick-ups. The brand was also mentioned in a letter in the Sound Off pages of the June issue headed 'A 21st century Garrard 401' and Jim Lesurf's November Opinion column entitled 'Shure bet'.

In 1996 I inherited a Thorens TD 124/II turntable with an SME 3012 Series II arm and Shure V15 cartridge. This set-up was serviced by Terry O'Sullivan at Loricraft who replaced the cartridge with a Goldring 1042, though in 2001 I returned to using a Shure in the form of a V15VxMR.

Referring to Jim Lesurf's 'Shure bet' piece in which he mentioned that Shure had stopped offering replacement styli for the V15 series many years ago, I would remind him of the May '16 issue of *HFN* and a letter in the Sound Off pages with the heading 'Replacement stylus for V15'. Following a reply to the reader's letter by Jim himself, Adam Smith suggested taking a look at the replacement styli for Shure cartridges offered by JICO (*www.jico-stylus.com*).

ABOVE: The Shure V15VxMR arrived in 1996 and saw the V15 name revived

I have been using the JICO VN5XMR HG SAS/B stylus for some time and find it superior to Shure's own version, of which I have one for keepsake. My turntable is hooked up to a Quad 99 preamp, 909 power amp and Sonus faber Olympica Nova III loudspeakers.

Mark Beenstock, via email

Jim Lesurf replies: I'm aware of JICO's range of replacement styli, Mark, but have yet to investigate them fully as my originals seem to have soldiered on to an amazing extent! But given your positive experience I am now sufficiently intrigued to give one a try.

ABOVE: Mark's Thorens TD 124/II with its SME arm and Shure V15VxMR pick-up

Jazz at St John

READER RECALLS CHURCH PERFORMANCES IN PINNER

I read Barry Fox's column in the October issue with interest. He mentioned St John the Baptist church in Pinner. I lived in Pinner until 2006 and attended several of the monthly jazz nights held at the church. Two concerts in particular stand out in my mind. The first was a tribute to Stéphane Grappelli with John Etheridge on guitar and the second was a Sunday afternoon classical concert held in 2005 featuring Stewart French on guitar and Pinner resident Elizabeth May on cello. Both excellent entertainment at a reasonable price.

Keith Jenkins, via email

Barry Fox replies: It's always good to hear from readers who want to share their experiences of listening live in a good acoustic, with minimal amping, and at sensible seat prices. I've recently re-discovered Milton Court, which is just down the street from the Barbican Centre.

Clad in wood, the hall is similar to the Kings Place halls near King's Cross. Milton Court is 'home' to the Guildhall School of Music and puts on excellent concerts (classical and jazz) at bargain prices, but without high profile publicity. So you will need to dig into both of these websites: *www.barbican.org.uk/hire/promoters/milton-court-concert-hall* and *www.gsmd.ac.uk/whats-on*.

WhitWorld

OUR HI-FI WORLD THROUGH THE EYES OF WHITWORTH

A DAC for the future

CAN YOU RECOMMEND A SINGLE CONVERTER FOR MY DIVERSE DIGITAL DEVICES?

I've owned a hi-fi system since I started my first proper job in the mid 1970s. I didn't call it an 'analogue' system because digital components didn't exist and so there was no alternative to compare it with. Even when CD appeared, the players had the DAC hidden away inside with two RCA phonos on the outside, delivering an analogue signal.

So my system was analogue then, and it is now. Or is it? I recently realised my set-up has three digital devices as inputs, and no analogue ones. Each of them – my PC (local hard disk music collection), my Rega Apollo CD player and my TV – is digital, and has its own DAC, which seems inefficient. As I consider pension-dependent upgrades, should I be looking at things differently? Are there such things as DACs with three inputs (two optical and one USB) that I could switch between? Or are there amps that offer such switching? Have you advice to offer old-time readers like me, whose systems have morphed into digital set-ups?

I currently use a Chord Mojo 2 DAC [*HFN* Apr '22] connected to my PC, and I'm delighted with the sound via my Grado SR325e and Sennheiser HD800S [*HFN* May '16] headphones, and through the main system. The Rega CD player is pretty good too. My amp is a Linn Majik 1 driving B&W CDM-7NT speakers. This all cost less than £5000, which is pretty modest by today's standards.

Steve Merrick, via email

Andrew Everard replies: With the shift towards ever more digital-sourced music – notwithstanding the continued popularity of vinyl – many amplifiers have sprouted multiple digital inputs, including USB-B 'computer audio' ports along with the familiar optical and coaxial connections. Some even have HDMI inputs with ARC (audio return channel) capability for the connection of sound from a TV set.

So changing your amplifier for one with a full digital feature-set might be one route to take, provided you can find one with the required set of inputs and a sound that will match or better that of your Linn. But as you seem happy with the sound of your current amp and speakers, using a DAC able to function as a 'digital hub' is probably the most cost-effective solution. I'd suggest the Audiolab M-DAC+ [*HFN* Jun '16], at around £650 as an ideal starting point. It has sufficient inputs – two coaxial, two Toslink optical, one AES/EBU, and a USB for PC – and, depending on the input used, can accept datastreams at up to 384kHz/32-bit and DSD256.

The M-DAC+ is also based around a tried-and-tested converter chip, the ESS ES9018, offers a wide choice of digital filter options – if that's your thing – and has an excellent analogue section, providing line or variable level output to the amplifier. It also boasts a rather good in-built headphone amp. All of this is fitted into a package which, if not as compact as the tiny Chord Mojo 2 DAC, will take up minimal space in its 'half-width' housing.

ABOVE: The MDAC+ has coaxial, Toslink optical and AES/EBU inputs plus USB for PC

JITTERBUG
USB Filter

Can a £39 insect make all your CD files sound better than Hi-Res?

Yes and no: Using the same equipment and a quality DAC, a 24/96 file (for example) will always sound better than a CD 16/44.1 file … but, even a single JitterBug will often allow a CD file to be more musical and more emotionally stimulating than a Hi-Res file without the benefit of a JitterBug.

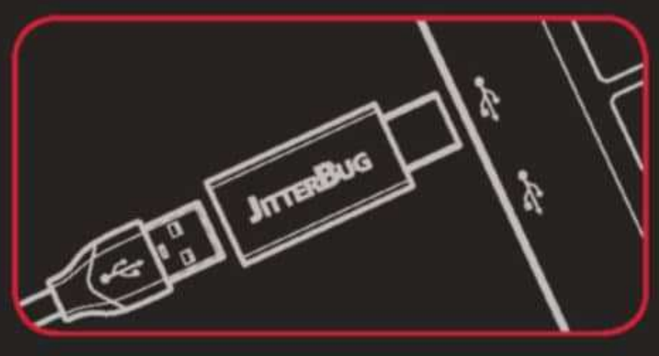
Noise is the problem. Real noise—the kind you can't hear directly. Most often, the word "noise" is used to describe tape hiss or a scratch on a record, but these sounds aren't noise; they are properly reproduced sounds that we wish weren't there.

Problem noise is essentially random, resonant or parasitic energy, which has no meaning. It can't be turned into discrete sounds, but it does compromise signal integrity and the performance of everything it touches.

JitterBug's dual-function line-conditioning circuitry greatly reduces the noise and ringing that plague *both* the data and power lines of USB ports, whether on a computer, streamer, home stereo or car audio front-panel USB input.

A single JitterBug is used in between devices (i.e., in series) as shown below. For an **additional "wow" experience,** try a second JitterBug into another USB port on the same device (such as a computer). Whether the second port is vacant, or is feeding a printer or charging a phone, JitterBug's noise-reduction ability is likely to surprise you. No, the printer won't be affected—only the audio!

While a JitterBug helps MP3s sound a lot more like music, high-sample-rate files have the most noise vulnerability. Try a JitterBug or two on all your equipment, but never more than two per USB bus. There is such a thing as too much of a good thing.



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Seeking a groovy reunion

HUNT FOR '50S PHILIPS TURNTABLE BEGINS AFTER COUPLE REDISCOVER THE JOYS OF VINYL

I was one of the many who gave up their turntables in the late 1980s – in my case an Ariston RD80 equipped with a Linn Basik arm – in the belief that digital had made vinyl redundant. Decades later, my wife Zietra agreed to the purchase of a secondhand SME Model 10 turntable [*HFN* Dec '99 & Mar '21] with a dual Timestep armboard. We'd always enjoyed listening to Ella Fitzgerald and Louis Armstrong's *Ella & Louis* album on CD, but will never forget that first evening with the SME 10 when Louis piped in with 'April In Paris'. We broke into grins – we were listening to a real voice, not a facsimile! And this with a modest Ortofon 2M Blue MM cartridge [*HFN* Feb '08].

Anyway, Zietra wanted me to know that she'd been an analogue fan before me and to prove it produced a picture of herself and her Philips Disc Jockey Major turntable, which was taken in Hamburg sometime in 1961. Zietra can't remember the record she was cueing up in the photograph but given her tastes and the year, her guess is it's probably Stanley Turrentine and a bit of soul jazz.

We now plan to seek out a Disc Jockey Major turntable online or perhaps at an audio jumble. Given Ken Kessler's longevity he'll doubtless have reviewed this table in the past. We'd therefore value his advice on a suitable cartridge upgrade ready for when we finally track one down. And I imagine editor Paul Miller will have the stats on the Philips turntable's rumble, wow, flutter and arm resonance filed away somewhere too. Keep up the great work everyone!

Michael Doran, via email

ABOVE: Zietra with a Philips Disc Jockey Major suitcase gramophone from 1955

Ken Kessler replies: Ordinarily this would beg the question, 'Why?' as the Philips AG2121 Disc Jockey Major, a pre-cursor to mobile DJ decks, is rather obsolete – but, of course, nostalgia is your impetus. (I found an AG2121 on eBay for £89.) The valves are no problem and a rebuild would be straightforward for a record player launched 70 years ago, but fitting modern cartridges instead of the standard AG3010 might require surgery. However, sources such as *www.snvinyl.co.uk* sell the Philips GP-230 that can replace it.

ABOVE: The SME 10 with a Model 10 arm and (left) 8-bit microprocessor-controlled PSU

A ‘storm of memories’

BUD FRIED, A PAPER TRAIL, PLUS A STORY OF SPEAKER SERENDIPITY

Ken Kessler’s mention of Irving M. Fried in the November PMC prodigy review brought back a storm of memories. I got to know Bud, as he was called, in 1971 after purchasing my second set of speakers, the IMF Studio II (called the TLS50 in Britain). When I got them home I pulled off the grilles and lo and behold, the midrange cone, which I was expecting to be plastic like the woofer, was made of paper. I called up my dealer Mel Schilling (another long time audio personality) at Music And Sound and he told me to call Bud.

Bud told me he knew of the problem and to bring the loudspeakers to his laboratory that Saturday. It turned out that the midranges were paper but were supposed to have been coated with a PVA damping compound, the same clear coating used on bextrene drivers to minimise ringing. According to Bud, the month my speakers were manufactured the person responsible for applying the PVA decided to skip the coating thinking it looked ‘ugly’. That Saturday led to a long friendship until Bud’s death.

While Bud was probably the ultimate transmission line advocate, John Wright was the IMF designer. According to Bud, his search for transmission line speakers followed a meeting with Arthur Haddy of Decca in the mid ’60s. Arthur told him he’d had to give up his Quad ESL speakers because Decca could now put 30dB of dynamic range onto an LP and that was beyond the ESL’s abilities. Bud asked him for advice and Arthur told him to look into transmission line speakers. That led Bud to Radford, which was working on transmission lines.

Some years later Bud believed Radford was ready to supply him with speakers and he announced them for a show. Unfortunately, they weren’t quite ready. Bud had been working with cartridge engineer John Wright so he asked him about a suitable replacement speaker for the event. John suggested using a KEF Concerto kit and developing a transmission line cabinet for it. And that was the speaker presented at the show under the IMF brand name, which Bud had used before when importing British products to America. Modifications, such as replacing the KEF T27 tweeter with a Celestion HF1300 tweeter and Celestion HF200 super tweeter followed, resulting in the four-way IMF Monitor speaker.

Allen Edelstein, via email

Ken Kessler replies: My only direct experience of transmission line speakers, way back when, was restricted to IMFs – oh, to have a pair of SuperCompacts! – and eventually the TDLs which were their natural heirs after IMF disappeared. I recall being especially impressed by the floorstanding TLS 80, which delivered cavernous bass. Today, for those unnerved by the thought of buying 50-year-old loudspeakers, Falcon Acoustics actually manufactures new IMF models, which I hope to audition some day, while it has replacements for both IMF and TDL drivers. Ironically, the Radford speakers that I owned, loved and forever regret selling were Tristar 90s, which were not transmission lines at all.

ABOVE: Later iteration of the UK’s IMF TLS50 loudspeaker, sold in the US as the IMF Studio II

In praise of a ‘Budget Esoterica’ buy

AFFORDABLE DAC DELIVERS IN SPADES, BUT IS A TRANSPORT THE MORE CRUCIAL COMPONENT IN A DIGITAL REPLAY CHAIN?

I wanted to buy a DAC to be used with the digital output from a CD player. After reading Ken Kessler’s ‘Budget Esoterica’ review of Musical Fidelity’s MX-DAC [*HFN* Oct ’20] I purchased one. After connecting it to my system I could not agree more with Ken’s statement that ‘above all, the sound is genuinely astonishing’. I am intrigued by the fact that the MX-DAC pretty much consists solely of ICs, including IC op-amps, yet still sounds so good. It’s especially impressive with female vocals. So thanks for the detailed and accurate review, not to mention the technical information.

John E, via email

ABOVE: The MX-DAC uses a PCM1795 DAC chip, sample rate converter and op-amps all from TI

Ken Kessler replies: This is the basis of one of the great pub debates (do audiophiles congregate in pubs?) which has parallels in analogue. Forever there will rage arguments as to which part of a vinyl source matters most – deck, arm, cartridge or phono stage – while it’s simpler in digital. Which is the more crucial component, transport or DAC?

I maintain a 30-years-old-plus Marantz CD12/DA12 and am loath to choose either section as more important than the other. My gut tells me it’s the DAC, but the transport uses a Philips CDM1 drive, which some claim to be the best ever. My bucket list transport – I bought a PS Audio PerfectWave [*HFN* Aug ’09] as my final disc spinner – awaits its natural partner, the DirectStream II DAC. It was buy that, or more fine wine. The wine is losing...

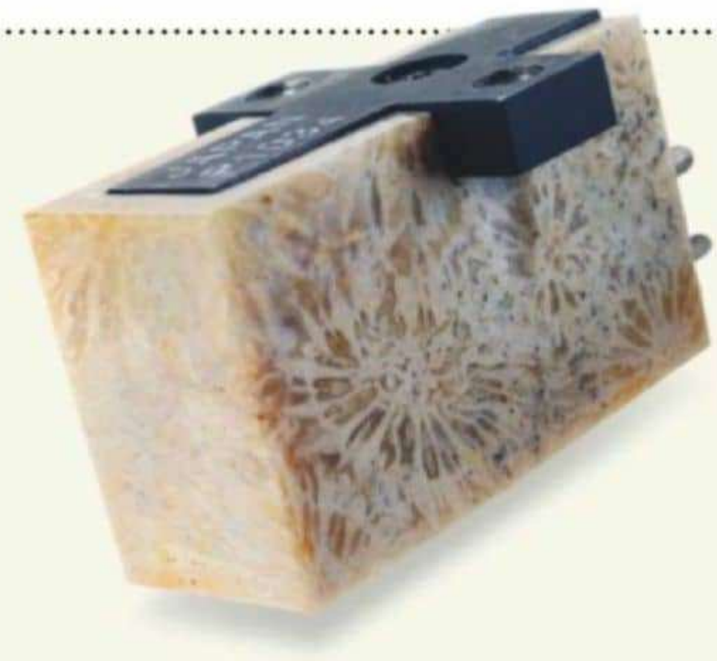
Like a ’Stone

READER ENJOYS KOETSU PICK-UP REVIEW

Thank you for your no-nonsense, hands-on review of the Koetsu Coralstone Platinum Series cartridge [*HFN* Aug ’23]. As far as I know, yours is the first real review of this pick-up. I searched the Internet and the closest I came to a review was what I can only describe as a rag-bag of hyperbole without real content.

Your description of the cartridge’s sound is very close to my own experience, though with one small caveat – it is quite arm dependent. It sang in a Fidelity Research FR-64x, sounded a bit unremarkable in an SME V yet produced formidable bass in a SAEC WE 506/30. I love the fact you published real measurements as well. Very useful. Kudos!

TK Realfsen, Bergen, Norway



ABOVE: The Koetsu Coralstone MC uses a boron cantilever and a platinum magnet

Paul Miller replies: The 20g Fidelity Research FR-64fx and silver-wired ’x offer a lower (but still ‘high’) effective mass than the 35g FR-64s [*HFN* May ’82] and 12in SAEC WE506/30. Both arms are far ‘heavier’ than the 10-11g SME V and arguably better suited to substantial, low compliance MCs.

Amstrad amusement

‘PRICELESS TEXT’ OF ’70S AD TRUMPETING THE COMPANY’S TP 12D TURNTABLE

Old-timers like myself will have smiled to see the Amstrad turntable ad that accompanied Steve Harris’s Opinion piece in the October issue on the way the former company’s TP 12D turntable was ‘inspired’ by the design of the Rega Planet deck. But it was a pity the picture of the 1976 ad wasn’t big enough to read the priceless text. For the benefit of younger readers, this ran as follows:

‘The TP 12D has taken a decade to develop, and although contemporary in looks, its design is principally functional and of prime importance. The tri-lateral peripherally weighted platter produces an equiponderate tangential counterbalancing force; the platter being solid die-cast, combines to permit it to revolve at more constant speed, limiting wow and flutter to a minimum.’

D Sperring, Surbiton

Steve Harris replies: The Amstrad turntable appeared well after the Rega Planet, which was launched in 1973. Later in the 1970s, there came a more elegant echo of the Planet’s visual theme, but in a turntable as different as could be from any Rega. The JBE Series 3 [*HFN* Jan ’11] sported an impressive-looking platter consisting of six pods mounted on a supporting disc and rotated by a Matsushita direct-drive motor. In its original form, the JBE was built into a heavy plinth of Welsh slate. JBE went out of business in 1982.

ABOVE: The JBE Series 3 turntable with its slate plinth and platter featuring six ‘pods’

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- Andrew Everard, Lab: Paul Miller, hi-fi news

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B&O Beomaster 2000

With the Danish company in the doldrums come the early ’70s could this reimagined receiver with phase-locked loop decoder deliver on its promise of ‘high fidelity’ sound?

Review: **Tim Jarman** Lab: **Paul Miller**

Bang & Olufsen’s first move into the world of serious hi-fi came in 1967 with the introduction of the Beolab 5000 amplifier and Beomaster 5000 tuner [*HFN* Dec ’12]. These defined the European state of the art at the time and were as successful as their high prices allowed. The company then distilled these two units into the Beomaster 3000, which offered similar qualities at a more accessible price. It lacked the sheer power and versatility of the Beolab 5000 but sold strongly throughout a long production run.

These products created a new sector in the company’s range – ‘high fidelity’. The models were aimed at the serious listener and offered high power output, advanced facilities and what the designers considered to be the best possible sound.

WIDE RANGING

This ‘high fidelity’ line got off to a good start but floundered in 1973 when the Beomaster 4000 was introduced. This was intended as a Beolab replacement and was based on a modified 3000 chassis, uprated to produce 2x60W. Yet its sound was lifeless and unexciting. The 6000 4channel receiver [*HFN* Sep ’21] was not as dynamic as it could have been either, suggesting that something had gone seriously amiss in the design of B&O’s range-topping models.

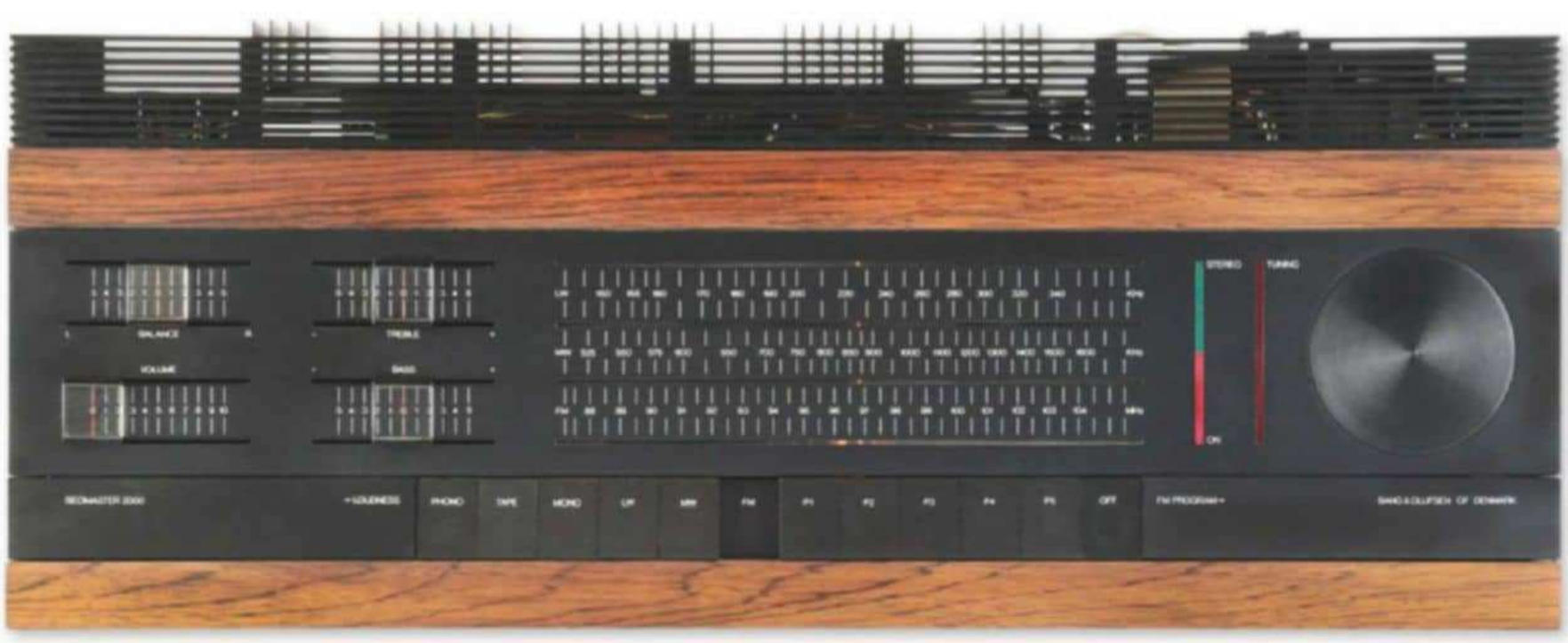
It was against this backdrop that the Beomaster 2000 reviewed here appeared. Launched in late 1975 and new from the ground up, it saw designer Jacob Jensen’s beloved ‘low and wide’ look introduced to the serious end of the range. And there were plenty of novel technical ideas inside too. B&O’s circuitry typically evolved slowly across inter-related models but most of the 2000 had not been seen before. For example, the AM radio section was B&O’s first IC-based design and included a ceramic filter to give precise tuning. The FM section also made extensive use of ICs and included five pre-set stations and a sophisticated active AFC system, which ensured permanently accurate tuning.

The key innovation, however, was the phase-locked loop stereo decoder – B&O’s first. Even the more expensive models in the range still used the older regenerative type, so in terms of radio performance the 2000 was a big step ahead. Yet while impressive, none of these features were what made the Beomaster 2000 special.

ABOVE: This large and flush-mounted flywheel is used to tune the Beomaster 2000’s radio. The coloured lights to the left of the wheel indicate the signal strength and tuning balance

LOW RIDER

The really important change was that it was B&O’s first amplifier to use DC coupling between the output transistors and speaker load. Dispensing with the transformers or capacitors that previously sat between these two elements meant the amplifier’s output impedance could



LEFT: The Beomaster 2000 is a powerful unit and the amplifiers need plenty of cooling when working hard. Note the generous heatsinks at the rear, hidden from casual view by a grille above them

be reduced [see PM's Lab Report, p125] and substantially constant in respect to frequency. This, in turn, paid dividends in terms of the damping factor that could be achieved at the speaker interface and the quality of bass that could be reproduced.

CAPACITOR CRUSADE

DC-coupled amplifiers had been made possible by the introduction of matched pairs of complementary power transistors in the early 1970s. B&O was not to be rushed into producing a DC-coupled design but the 2000 proved to be thoughtfully engineered and rugged when it did eventually appear. The output transistors chosen were high-gain Darlington types, a class of component B&O had extensive experience of given their widespread use in a previous series of lower-powered, AC-coupled models.

This was not the end of the story, however. Having eliminated the large aluminium electrolytic capacitors in series with the loudspeaker outputs the designers then systematically eliminated them from everywhere else in the design where it was practical. In the end, only six remained, which were necessary for power supply filtering where no other capacitor technology could yield the values needed. What's more, all the capacitors in the signal path were either tantalum or film types. While a familiar enough performance amplifier technique today, it was a largely unexplored idea in domestic hi-fi in the mid 1970s.

> 'It was special because it was B&O's first DC-coupled amp'

The styling had moved on since the days of the Beomaster 1200 whose tuning control looked like a giant slide rule. The 2000 used a larger version of the flush-mounted flywheel first seen in the 6000 4channel. The temptation to use electronic signal routing was resisted with function selection being performed by oversized push buttons. These too were flush with the fascia when not in use.

Most Beomaster 2000s were finished in matt black anodised alloy with either teak or rosewood veneered cabinetwork, but limited numbers were produced with silver alloy over white. These are highly prized by collectors today. All B&O equipment from the 1970s is stylish, but the Beomaster 2000 takes this to the next level. Despite its mechanical controls it hasn't dated as much as some other B&O models – house guests who clapped eyes on it during my auditioning assumed it was less than ten years old.

ABOVE: Having all the controls on top was an unusual layout for a stereo receiver in the mid -'70s but the Beomaster 2000's ease of use demonstrates the advantages of this layout

FLUSHED WITH SUCCESS

The Beomaster 2000 is also a delight to use – B&O described the push buttons as 'super smooth' and they truly are. The flush tuning flywheel is nicely weighted while the tuning balance and stereo indicator lamps associated with it don't so much flicker as flow, as if they are operated by some ingenious arrangement of viscous fluid. Five pre-set stations are provided on FM, their setting made by a group of tiny scales under a sliding cover on the right of the unit. A similar cover on the left gives access to a tape 1/2 switch and a loudness button (which is best left switched off).

Compared to the other controls, the sliders for the amplifier are a bit stiff and jerky in use. Connections are provided for a turntable and two tape recorders, a pair of

BELOW: The complete Beosystem 2000 in white (left). Rare then, desirable now. Standard finishes were either teak or rosewood (below)

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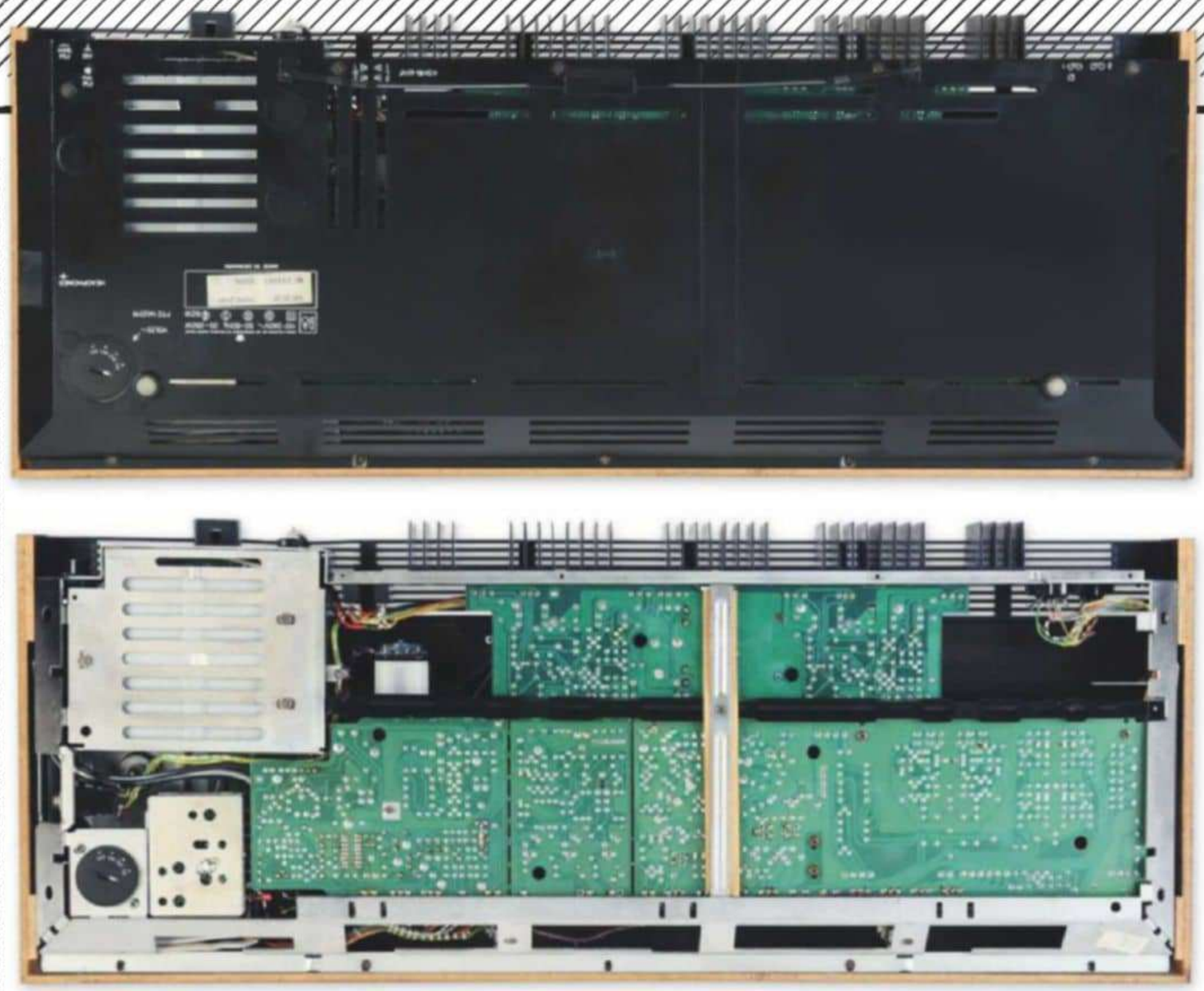

headphones and two pairs of loudspeakers. The turntable input is matched to B&O's own moving-iron pick-ups but these are similar enough to modern MM types for there not to be compatibility problems.

Having two tape sockets gives a useful place to connect a CD player, but this is best placed in 'Tape 1' and the recorder in 'Tape 2' otherwise CD-to-tape transfers cannot be made. The loudspeaker sockets are arranged so that one pair is muted when the headphones are connected and the other pair is not. The direct (speakers 2) is the best choice for critical listening, but less convenient in a domestic setting.

B&O claimed DC-coupling eliminated the switch-on 'thump' with loudspeakers that employed capacitors. This is true, but there's an odd soft thud heard a second or so after switching off. The Beomaster 2000 lacks a protection relay and so the speakers are kept safe by four fuses in the supplies to the output stages. B&O recommended that the loudspeakers used had a rating of at least 40W for this to be effective. Finally, like all B&O designs of this era, the amplifier is optimised for a 4ohm load.

TIM LISTENS

Even after the briefest of listens it's clear that B&O's designers must have celebrated a welcome return to form with the Beomaster 2000. The receiver still has the familiar luxurious B&O sound but this does not stop it being a lively and vivid performer. It improves noticeably on the Beomaster 3000 and completely trounces the 4000, despite being a third less powerful. The technology employed, which was focused on appealing to the ears of the audiophile, had done the trick – this particular model is a real hidden gem.

> 'The sax was creamy and the bass rich and chewy'

Perhaps the 2000's most attractive quality is the way it can play softly for late-night listening and render detail perfectly but also produce effortless amounts of power for a genuine concert hall experience when required. It lacks the clipping indicator of the Beomaster 4400 receiver [*HFN* Jun '12] so it is up to the listener to judge when the power margin is all used up. But things do not begin to sound rough until the control is almost at the top of the scale and the music is deafeningly loud. Unless your listening room is very large this receiver has more than enough power to cover most tastes. Noise performance is fair too, there being some hiss to be heard when the control is pushed beyond about '7' on the scale, but at normal volume levels the background is as good as silent.

TIME TO UNWIND

Sade's album *Diamond Life* [Epic CDEPC 26044] satisfied with its creamy saxophone and rich, chewy bass lines when played through the 2000. I did get the impression that the uppermost treble was slightly muted, though, as the snares and percussion didn't sparkle and shimmer in quite the way I know they can.

However, the effect was less obvious when listening to BBC R3 via the receiver's built-in FM tuner section (90.3MHz) and so I can only suspect that the very top end is going astray in the preamp section. Nevertheless, the roll-off is slight enough to be cancelled by selecting a brighter-sounding source. In my case, swapping a Philips CD104 [*HFN* Apr '14] for a Technics SL-P1200 [*HFN* Aug '13] did the trick.

Where the 2000 really scored was when it came to its midrange balance and neutrality. Vocals were perfectly placed in the mix, being neither prominent nor recessed. This made for an instantly attractive sound, and one that proved very easy to relax into. This may seem an obvious requirement, but there are many amps out there that are less compelling.

KEEP YOUR DISTANCE

On a larger scale, the slim Beomaster 2000 proved easily capable of preserving both the space and drama of full-scale orchestral pieces. Mozart's 'Serenata Notturna' played by the Berliner Philharmoniker, conducted

ABOVE: The interior of the unit is neat and well ordered. Note the space at the top of the chassis to house the two extra power amplifiers of the Quadraphonic version, the Beomaster 3400

LEFT: A graphical representation of a complete system as suggested in the owner's manual. The recommended components are the Beogram 2000 turntable and Beovox 3702 loudspeakers

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ABOVE: Rear view of the receiver shows that all the connectors are to DIN standards and, as ever with B&O, that there is little room around the sockets for bulky plugs

by Herbert Von Karajan [*Albinoni: Adagio/Pachelbel: Canon*; Deutsche Grammophon 413 309-2], showed how a carefully designed amplifier can preserve the impression of distance between the performers if the source component is up to the task of recovering it. Stereo soundstaging was also excellent, as was the rendering of fine textural detail around the strings.

SINGULAR APPEAL

After many more hours of listening I found myself concluding that despite being nearly 50 years old, the Beomaster 2000 has the sort of sound that makes it appropriate for use in a main system. It may lack the final perfection of the Beomaster 4400 [*HFN* Dec '12] and doesn't feel quite as special to own as the Beolab 5000 (although it is less coloured sounding when compared directly), but it has no obvious sonic vices. It also saw Bang & Olufsen escape the doldrums as far as the sound quality of its larger models was concerned.

When the 2000 was replaced by the Beomaster 2200 in late 1977 many of its novel ideas were lost, in particular the decision to avoid the use of aluminium electroltyic capacitors. This makes the 2000 a unique proposition, and one well worth seeking out to hear.

ABOVE: NuSound ad from *HFN* Feb '76 shows the Beomaster 2000 at £269.50

BUYING SECONDHAND

Since the Beomaster 2000 did not sell in the same quantities as the 3000 and 3000-2, good examples can be difficult to find. They are certainly sturdy units but are not without their problems. The cover over the pre-set tuning controls slides off and is easily lost, spoiling the sleek appearance. The tuning drive for the flywheel disc can also fail when the plastic inside that holds the pulleys for the cord drive disintegrates. Repairs are possible but they're not straightforward.

Meanwhile, the circuit for the red and green indicator lamps by the disc is unusually complex. This requires all the lamps (and the one inside the tuning pointer) not only to be intact but to be of exactly the right rating if it's to work at all.

Electronically speaking, it is the FM radio that seems to suffer most problems. The FM discriminator and tuning balance indicator have to be set up correctly for the AFC system and the stereo decoder to work, and they seem to drift over time. Accurate instruments are necessary to bring them back into line. The amplifier sections have proved to be reliable, but it's vital all the fuses are of the correct type and rating.

HI-FI NEWS VERDICT

The Beomaster 2000 may not be one of B&O's most memorable designs but in performance terms it certainly ranks as one of the company's best. If you are keen to avoid the hard and brittle sound of some amplifiers released around this period then the smooth-sounding 2000 is well worth considering. The top quality radio section is a bonus, which makes this slick-looking receiver even more compelling.

Sound Quality: 75%

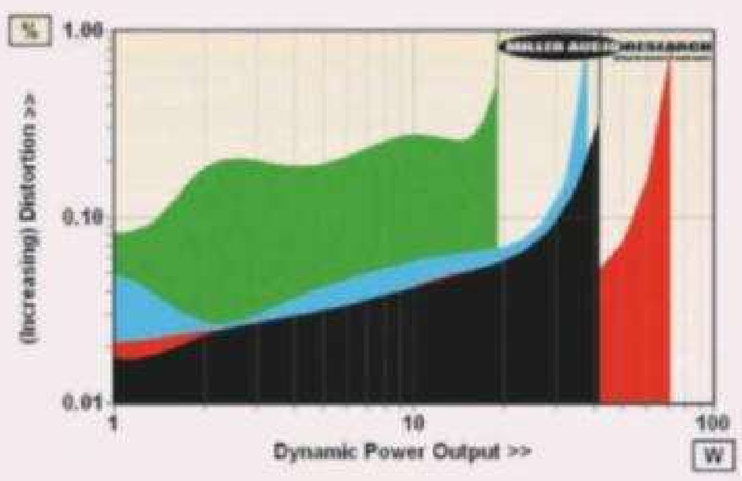
0 ... 100

LAB REPORT

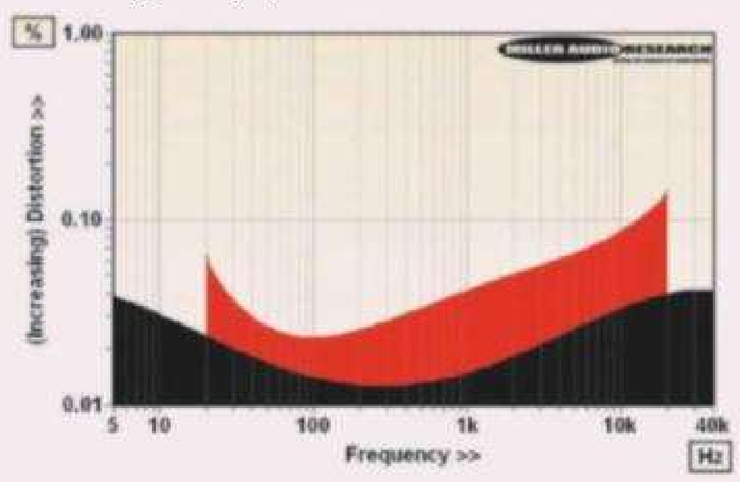
B&O BEOMASTER 2000 *(Vintage)*

B&O's first DC-coupled tuner/amplifier identically matches the Beomaster 2400-2 [*HFN* Dec '19] for raw power output but otherwise delivers a very distinctive technical performance. In practice our circa-1975 test sample sustained a maximum continuous output of 2x35W/8ohm (40W/8ohm, one channel driven) and 2x55W/4ohm with sufficient reserve to sustain transient peaks (1kHz/10msec/<1% THD) of 42W, 74W, 33W and 18W into 8ohm, 4ohm, 2ohm and 1ohm loads, respectively [see Graph 1, below]. Once again, the 4.3A current headroom is modest, suggesting the 2000 is best used with speakers rated at 6ohm and above, and of generous sensitivity.

Otherwise, the 2000 may be DC coupled but its low bass response is actively filtered, falling from –0.1dB/100Hz to –2.2dB/20Hz and –6dB/11Hz, just as its HF roll-off is influenced by the buffering of its volume control. With the volume slider at maximum (35.8dB gain) the response is flattest – reaching –0.2dB/20kHz and –3.8dB/100kHz – while at reduced volume positions (this is gain, not output level) the HF response is progressively muted. Output impedance is also influenced, but even the lowest 0.3-0.5ohm (20Hz-20kHz) will still cause some further response modification in line with the swings in speaker load. Distortion is more predictable, a steady increase in level from 0.016%/1W to 0.045%/10W and 0.09% at the rated 30W/8ohm (all 1kHz), and with frequency to 0.09%/10kHz and 0.14%/20kHz [all at 10W/8ohm – see red trace, Graph 2 below]. Noise is low too at –78dBV – testament not only to the design of B&O's linear power supply but also the elegant circuit layout – all of which secures a worthy 86.6dB A-wtd S/N ratio (re. 0dBW). PM



ABOVE: Dynamic power output vs. distortion up to 1% THD into 8ohm (black trace), 4ohm (red), 2ohm (cyan) and 1ohm (green) speaker loads. Max current is 4.2A



ABOVE: Distortion versus frequency from 5Hz-40kHz (1W/8ohm, black) and 20Hz-20kHz (10W/8ohm, red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	35W / 55W
Dynamic power (<1% THD, 8/4/2/1ohm)	42W / 74W / 33W / 18W
Output imp. (20Hz–20kHz/100kHz)	0.28-0.50ohm / 0.48ohm
Freq. resp. (20Hz–20kHz/100kHz, 0dBW)	–2.2dB to –0.22dB/–3.8dB
Input sensitivity (for 0dBW/30W)	44mV / 245mV
A-wtd S/N ratio (re. 0dBW/30W)	86.6dB / 101.4dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.025-0.14%
Power consumption (Idle/rated output)	11W / 111W
Dimensions (WHD) / **Weight**	685x75x270mm / 8.2kg

Enlightened or Ultralink?

Martin Colloms hears two outboard DACs featuring 20-bit chips in custom circuits – Enlightened Audio Designs' DSP7000 and the PS Audio Ultralink

Hi-Fi News Jul 1992

Each month *HFN* will bring you an article from our vast archive of features and reviews from yesteryear

American specialists, like their UK counterparts, continue to develop new variations on the available digital technology to produce DACs with audiophile appeal. This review covers two of the more intriguing examples, using some of the most advanced devices available to designers. The Enlightened Audio Designs DSP7000 is based on the 20-bit Analog Devices chip, while PS Audio has chosen an Ultra Analog dual 20-bit converter. What bearing the two choices of technology will have on sound quality remains to be seen!

ABOVE: The EAD DSP7000 DAC [top] cost £1350 on launch while PS Audio's Ultralink would have set you back £2499

EAD DSP7000

Beginning in the audio business as an upgrader of Rotel and other CD players, Enlightened Audio Designs (EAD), based in Iowa, rapidly gained expertise in the field of digital audio technology. It now produces its own equipment, and the first unit to appear is the DSP7000 DAC. The standard unit reviewed here has a phono socket output at a fixed level of 2V. Digital inputs include two coaxial and one Toslink optical while a reclocked, buffered digital output is provided. Mains input is via an IEC three-pin terminal. Extra cost options include fully balanced audio outputs with switchable level, plus the AT&T glass fibre optical interface for digital connection.

'The ability to switch the oversampling rate surprises'

When powered up, the input selection must be made, as this unit lacks auto switching. Indication is given of the input selected, whether the signal has been locked, if it has emphasis, if data errors are present, and finally whether absolute phase inversion has been selected. Inside it is possible to configure the phase

switch to match a given preamp or power amplifier inversion and thus correct the system via this source. The unit is heavily built from steel and alloy sections, the electronics are soundly constructed and it tips the scales at 22lbs.

FINE WORDS

The DSP7000 is multibit and employs a pair of selected 20-bit Analog Devices AD1862 chips, with independent local voltage references. These are fed 20-bit digital words from the high precision Burr-Brown DF1700P filter, which is a high-order, low-ripple design of 199 taps, originating at NPC. Low jitter (<200psec) is claimed by using the Crystal ADIC CS8412.

A proprietary aspect of the design is the 'Acculinear' circuitry contained in a chip composed primarily of discrete devices rather than a fully linked integrated circuit. This is claimed to execute the I/V conversion step with much lower overshoot and distortion on transients than the usual choice of an integrated op-amp. A sweeter, more natural sound is said to result.

De-emphasis is passively switched by relay. The output amplifiers and filter stages use fast AD841 op-amps, adjusted for offset and DC coupled at the output. Non invasive relay muting is employed.

Another surprising feature is the facility for the user to switch the oversampling rate between 4x or 8x. This is a fascinating detail. As supplied it was set to 4x, but in theory 8x is better, since this moves alias noise further out of the band and improves high-frequency resolution at low levels. In practice, at the higher rate the DAC is worked harder, with the ratio between settled output data and sampling switching transients impaired. Four times oversampling improves the ratio in favour of data precision.

RIGHT: PS Audio's Paul McGowan smiles at the camera during the 2023 UK Hi-Fi Show *Live* event, which took place at the Ascot Grandstand over the last weekend in September. Paul co-founded the company with Stan Warren in 1973, shipping its first product – a phono preamp sold direct to consumers – the following year

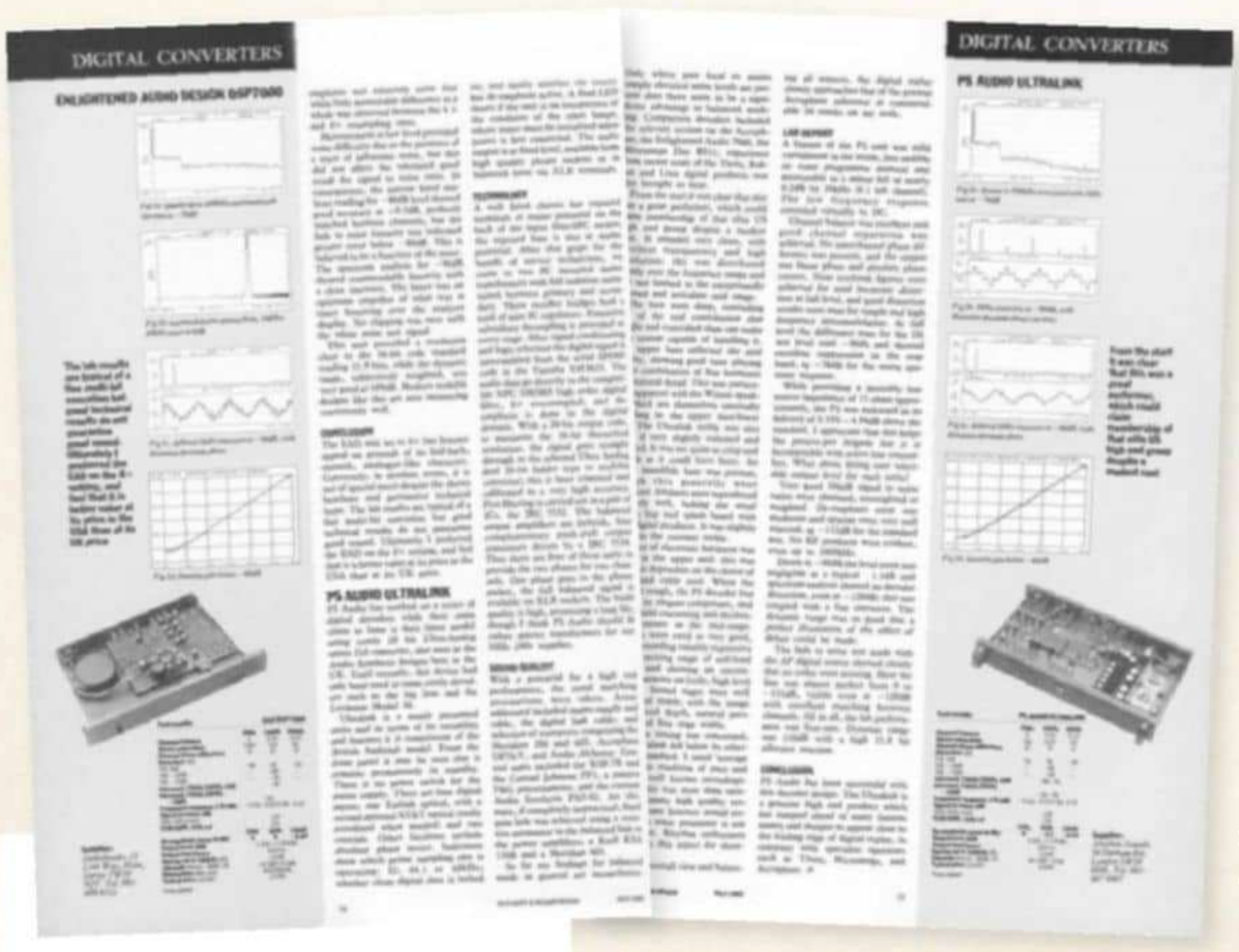
PHOTO: ANDREW SIMPSON

POWER UNPLUGGED

The sonic difference is subtle and the user is left to make up their own mind on this unusual facility. The switch requires access to the interior and the mains terminals on the back of the power terminal are not shrouded. This means that the power cable should be detached before undoing any screws.

An oversized toroidal transformer is incorporated, with eight secondaries feeding separate rectifier sections and reservoirs to aid isolation between stages. Eight chip regulators feed clean power to various stages. The audio path is mirror symmetrical, effectively double mono from the digital filter onwards. Top quality Tiffany audio connectors are fitted and the whole unit suggests a careful, conscientious design.

BELOW: Original pages from the July '92 issue of *HFN* in which Martin Colloms compared – and lab tested – the EAD DSP7000 and PS Audio Ultralink D/A converters



ANALOGUE ALLURE

The DSP7000 was tried on both 4x and 8x oversampling modes. On the former the unit showed an exceptionally smooth and well controlled nature, one that might well appeal to fans of analogue who are disturbed by the brightness and forwardness of some digital replay. The midrange had noticeably less glare than usual with natural string tone, and pleasant singing voice.

On the other hand, the treble sounded slightly softened, and although free of lispy edges or perceptible grain it also sounded rather dry. More air and sparkle would have been welcome, and there was perceptible reduction in atmosphere on familiar recordings.

However, the bass register sounded big – this quality again aiding the impression of a full sound. Conversely, when played on systems with good bass attack, the DSP7000 bass showed some slowness and heaviness, and the bass definition will be bettered by other digital decoders in this price range.

Stereo images showed a natural, well balanced perspective with good width. Depth was above average, but neither this nor transparency were felt to be in the audiophile class. Focus rated above average too. Switched to 8x there was a clear change. Now it sounded more

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'digital' – which in fact may not be to all tastes. The treble was more sibilant, with a trace of lispiness and edge. In addition the midrange was harder with a more forward presentation. Nevertheless, the mid would still rate as well above average in terms of neutrality.

On the positive side the dynamics improved to 'good plus', the sound being both clearer and more lively. Definition and detail were better, and greater depth and transparency were apparent.

CONCLUSION

Overall, set to 4x, the DSP7000 has listener appeal on grounds of its laid-back, smooth, analogue-like character. Conversely, in absolute terms, it is not of special merit despite the showy brochure and persuasive technical hype. Ultimately I preferred its presentation on the 8x setting, and feel it is better value at its price in the USA than in the UK.

PS AUDIO ULTRALINK

PS Audio has worked on a series of digital decoders while its main claim to fame is its latest model using a costly 20-bit Ultra Analog stereo D/A converter. Until recently, this device had only been used in some expensive decoders, such as the big Stax and the Levinson Model 30.

The Ultralink is a neatly presented unit and in terms of versatility and features is reminiscent of the British Audiolab 8000DAC converter. From the front panel it may be seen that it remains permanently in standby and there is no power switch for the mains supply. Meanwhile, the Ultralink offers four digital inputs: one Toslink optical, with a second optional AT&T optical (easily retrofitted when needed) and two coaxials. Other facilities include absolute phase inversion.

Indicators show which prime sampling rate is operating: 32, 44.1 or 48kHz; whether clean digital data is locked on; and finally whether the source has de-emphasis active. A final LED shows if the unit is on irrespective of the condition of the other lamps, whose states must be initialised when power is first connected. The audio output is at fixed level and is available from high quality phono sockets or in balanced form via XLR terminals.

> 'The Ultralink uses a dual 20-bit ladder-type converter'

A well fitted chassis has exposed terminals at mains potential on the back of the input filter/IEC socket; the exposed fuse is also at mains potential. After that gripe for the benefit of service technicians, we come to two PC-mounted mains transformers with full isolation maintained between primary and secondary. Three rectifier bridges feed a total of nine IC regulators. Extensive subsidiary decoupling is provided at every stage.

After signal conditioning and logic selection the digital signal is unscrambled from the serial S/PDIF code in the Yamaha YM3623 chip. The audio data go directly to the NPC SM5803 high-order digital filter, 8x oversampled, and de-emphasis is done in the digital domain. With a 20-bit output code, to maximise the 16-bit theoretical resolution, the signal goes straight through to the selected Ultra Analog dual 20-bit ladder-type or multibit converter; this is laser trimmed and calibrated to a very high accuracy. Post filtering is carried out in a pair of JRC 5532 integrated circuits.

HYBRID DRIVE

The balanced output amplifiers are hybrids, four complementary push-pull output transistors driven by a JRC 5534. Thus there are four

ABOVE: The Ultralink sports LEDs that indicate the sampling frequency of the incoming data, show if it has been pre-emphasised, and whether 'clean' digital data is locked on. The circuitry remains powered as long as the unit is plugged in

of these units to provide the two phases for two channels. One phase goes to the RCA phono socket, the full balanced signal being available on XLR sockets. The build quality is high, promising a long life, though I do think PS Audio should consider fitting rather quieter transformers for our 50Hz, 240V supplies.

CLEAR TO HEAR

Enjoying the same test conditions as the DSP7000, areas addressed here included mains supply and cable, and the digital link cable. A selection of transports were used – Meridian's 200 and 602, and an Accuphase DP70-V – while control units included the Krell KSP-7B and Conrad Johnson PF1, a passive P&G potentiometer, and the current Audio Synthesis PAS-02. An ultimate, if impractical, fixed-gain link was achieved using a resistive attenuator in the balanced link to the power amplifiers, which were a Krell KSA-150B and Meridian 605.

So far my findings for balanced mode are inconclusive. Only where poor local or mains supply electrical noise levels are present does there seem to be a significant advantage to balanced working. Comparison decoders included the relevant section on the DP70-V, the Enlightened Audio DSP7000 and the Micromega Duo BSII, while experience from recent trials of the Theta, Roksan and Linn digital products was also brought to bear.

From the start it was clear that this was a great performer, which could claim membership of that

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elite US high-end group despite a modest cost. It sounded very clean, with excellent transparency and high resolution. This was distributed evenly over the frequency range and was not limited to the exceptionally focused and articulate midrange.

GRAND SLAM

The bass went deep, reminding one of the real contribution that weight and controlled slam can make to a system capable of handling it. The upper bass reflected the mid quality, showing a combination of fine harmonic and textural detail. This was particularly apparent with Wilson Audio speakers, which are themselves unusually revealing in the upper bass/lower mid. The Ultralink treble was also good, if very slightly softened and rounded, being not quite as crisp and explicit as it could have been. An almost inaudible haze was present, though this generally went unnoticed. Sibilants were reproduced extremely well, the usual careless lisp and splash heard with many digital products being absent, even if the presentation was slightly dulled in the extreme treble.

A trace of electronic hardness could be heard in the upper mid: this was somewhat dependent on the choice of system and cable used. When the going got rough, the PS decoder lost some of its elegant composure, and showed mild coarsening and thickening of texture in the midrange. Dynamics were very good, this unit sounding expressive with an exciting range of soft/loud contrasts and showing an uncompressed character on lively, high-level transients. Soundstages were well focused and stable, with the image having good depth, natural perspectives and fine width.

As far as 'timing' was concerned, the PS Audio Ultralink fell below its otherwise high standard. It rated 'average plus' for the rendition of 'pace and rhythm' in well known recordings. However, this was more than satisfactory for many high-quality systems, and many listeners would testify that this sonic parameter is not too important. Rhythm enthusiasts must confirm this aspect for themselves. Taking an overall view and balancing all aspects, the digital replay closely approaches that of my present reference, the Accuphase DP70-V.

'Bass went deep while also showing fine detail'

CONCLUSION

PS Audio has been successful with this decoder design. The Ultralink is a genuine high-end product which has jumped ahead of designs from many famous names to appear close to the current leading edge of digital replay, in company with specialist operators such as Theta, Micromega, and Accuphase.

ABOVE: Lid-off shot reveals the two PC-mounted mains transformers [far right] and the three bridge rectifiers that feed nine IC regulation stages. The signal is unscrambled from the serial S/PDIF code in the Yamaha YM3623 chip [centre right] and then sent to the (screened) Ultra Analog dual 20-bit converter [far left] via the NPC SM5803 digital filter [centre left]

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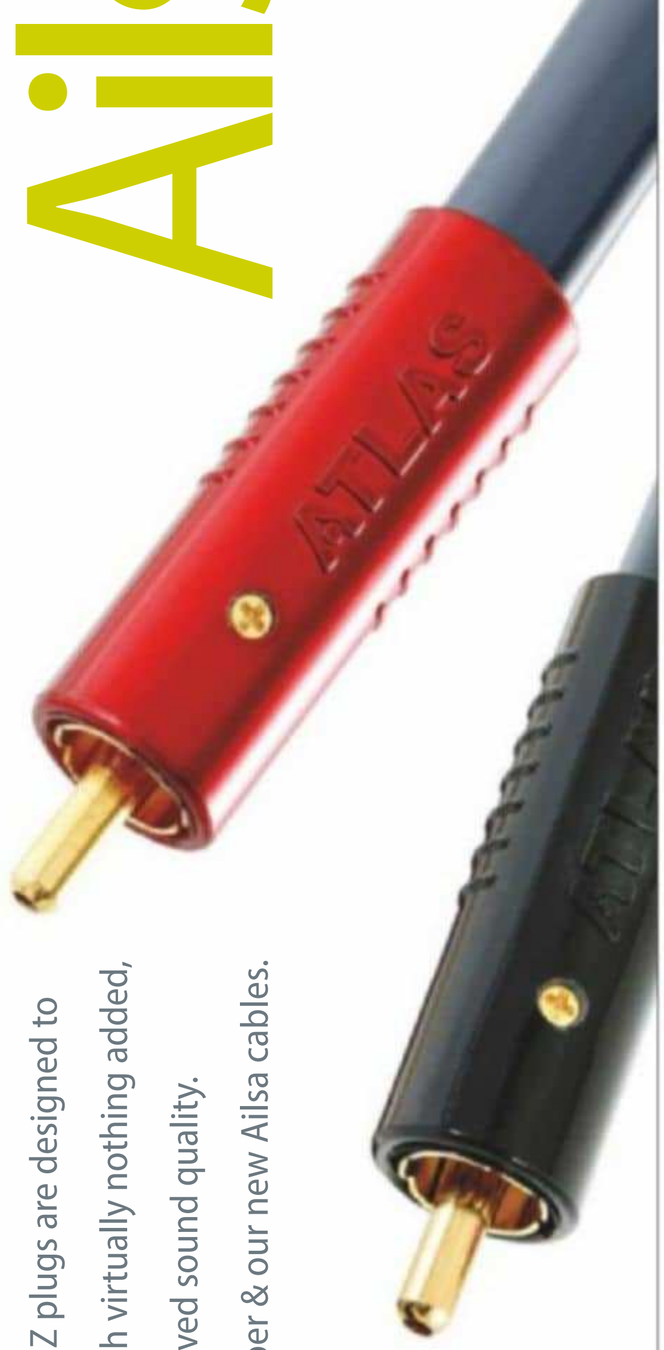

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OFF THE LEASH!

KEN KESSLER TELLS IT LIKE IT IS...

Ken Kessler argues the merits of the retro appeal figuring in more than a few audio redesigns

Inevitably, there has been something of a customer backlash against the plethora of products which seemingly look backwards instead of forwards. In nearly every field of manufactured goods, especially in the luxury sector of which hi-fi is a part, 'retro' is a now-essential selling point at a time when modernity is rendering life dystopian. (I am not the only tech-savvy soul who has been stymied by car park apps which don't work in areas of poor reception. It begs the return of a simple cash payment.)

COMFORT ZONES

People love retro because of a simple psychological cause. Consumers are drawn to the comfortable, familiar and/or nostalgic, even if it isn't *their own* nostalgia.

Allow me to explain. A list of industries which have wallowed in retro suggests near-universal appeal, despite those who decry it as being a refuge for laziness or lack of imagination. It includes cars; all music reissues; luggage (Globetrotter, Rimowa); kitchen appliances (AGA, Rangemaster); wristwatches (all mechanical types); men's fashion (classic attire dominates); fountain pens (innately retro), *ad infinitum*.

Few indulging in past glories have failed, thus the opportunities provided by anniversaries, which some object to. Surely an anniversary is one of the passage of time's few gifts?

> 'They might *seem* like breaths of stale air'

Retro's value is inescapable when it comes to the two biggest hits in recent motoring history: the reborn Mini and the Fiat 500. Their original production spans were, respectively, 1959-2000 and 1957-1975, so it's doubtful the majority of their demographic – the people buying those cars – were even alive when the marques were launched.

COMPETITIVE UPDATES

And yet those cars in their new guises are huge triumphs. In fact, all retro-inspired items (with the exception of fountain pens) employ brand-new technology clothed in vintage attire. Even the latest AGA cookers use electronic timers, while the Fiat and the Mini are truly contemporary vehicles but with period-look coachwork and both vastly superior in performance to the finest examples of their predecessors.

On to retro hi-fi. While the efforts of JBL, Klipsch, Thorens, NAD and other brands reviving or celebrating models of the past might possibly seem like breaths of stale air, inside all have been updated. Even ValvePower's reborn Leak Stereo 20 and Quad II amplifiers benefit from components which did not exist in the 1950s and '60s. So, they may look like something straight out of the 1961 *Hi-Fi Yearbook* but my experience suggests they can compete with much of what is currently on the market of similar specification.

What of the *appeal* of retro, and hi-fi in particular? For audio, it is even more logical than for, say, cars or cookers, because there are enough music lovers who have shunned digital and returned to the LP. Vinyl itself is innately retro and yet we have brand-new cartridges made with materials that didn't exist during the analogue era, and phono stages which blow away anything from 60 years ago. The latest turntables are also marvels of modern technology, so even if Thorens' TD 1500 [*HFN* Mar '22] looks like something from Harold Macmillan's time, it still outperforms the original TD-150.

So what is wrong with emulating the classic looks of the past, especially if manufacturers avoid or even correct the performance failures of the originals?

BACK TO THE 1700s

What I won't say is that all vintage hi-fi has been bettered entirely by reincarnated progeny – and I have yet to hear A/B comparisons between the new Klipsch Heresy loudspeaker or JBL's L100 and their antecedents. But what is so egregious about savouring the looks of past classics, when you consider that so much modern equipment is either utterly anodyne in its styling, or absolutely grotesque?

But not all... While hardly able to reference its past, because the brand was only born in 2011, even ultra-modern D'Agostino amplifiers exhibit a touch of retro by fitting a meter based on a watch dial and hands which date from the late-1700s. Does this diminish the amplifiers' credibility? Hell, no. If anything, it humanises them and makes them even warmer – and I mean metaphorically rather than via calidity.

While I appreciate there are modernists – *eg*, those benighted souls who prefer an Apple watch with a one-season shelf-life to a Patek Philippe, when they already own smartphones to deal with data – the least one can say is that there is no harm at all in employing retro. And if it makes hi-fi more acceptable on a domestic level, by being more visually appealing and more room friendly, so be it. I would rather look at a revived Leak amp than some cold, heartless, soulless 'space-age' creation. So bring back the wooden sleeve, says I.

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